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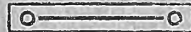


Vol. 3.
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BELFAST NATURAL HISTORY
AND
PHILOSOPHICAL SOCIETY



PROCEEDINGS
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SOME 18th CENTURY FOLK ART IN IRISH GRAVEYARDS.

ADA K. LONGFIELD, M.A., LL.B.

(Mrs. H. G. Leask).

Certain forms of monumental art have always been a source of interest—*e.g.* the elaborate effigies of mediaeval times, or the massive marble sculptures of later dates—but the more ordinary 18th-19th century headstones in churchyards have seldom attracted much attention, save from those in search of obituary details. This is not altogether surprising. The former were sometimes carved by famous sculptors, whereas the decoration (if any) of the latter was usually entrusted to a local stonecutter. Sometimes, however, those who did the ornamented headstones were artists in an admittedly humbler way. Thus the carvers of many of the 18th century signed designs to be found in various parts of the counties Wexford, Wicklow, Carlow and Louth, especially, created what may be regarded as a quite distinctive monumental “Folk art” school of their own.

Much of this work has already been described at considerable length by this writer in various issues of the *Journal of the Royal Society of the Antiquaries of Ireland*¹, yet even since writing the last few articles further specimens of interest have been seen and noted. Consequently this paper represents an effort to summarize the earlier information as briefly as possible, and to make it more complete (and, it is hoped, more interesting), by including some of the related work which has only recently been found.

Before dealing in detail with any of the individual carvers, or their designs, it seems advisable to make a few general observations.

DISTRIBUTION, ORIGIN AND TYPES OF DESIGNS. (Map overleaf.)

Examination of many old graveyards shows that the *majority* of the surviving elaborately decorated headstones are usually to be seen in the more *secluded* parts of the eastern regions of counties Wicklow, Carlow and Louth and throughout most of Co. Wexford. Except for the Co. Louth group, this is especially true of the *signed designs* based on individual interpretations of the Crucifixion scene, though a few unsigned examples have been noted as far west as Seir Keiran in Co. Offaly, and at a few places in Co. Clare. Unsigned designs of varying degrees of elaboration solely based on the better known and more easily represented emblems of the Passion—ladder, pincers, nails, dice, spear, etc., etc., and frequently cut in coarse granite—are far more widespread. They occur as near Dublin as Tallaght as well as in counties Wicklow, Wexford, Kilkenny, etc. Though not usually of any great interest, in this writer's opinion they form an

1. Vol. 73 (1943), pp. 29-39; vol. 74 (1944), pp. 63-72; vol. 75 (1945), pp. 76-84; vol. 76 (1946), pp. 81-88; vol. 77 (1947), pp. 1-4; vol. 78 (1948), pp. 170-174.

MAP (South-eastern area)



important link between the ambitious 16th and 17th century slabs and their numerous emblems² and the Crucifixion scenes (which often include certain emblems too), signed by Dennis Cullen of Monaseed, Miles Brien, James Byrne and others. The relatively confined area in which the latter class are located seems to indicate that *credit must be given to individual talent*—stimulated by mutual admiration and emulation—but that the well known and traditional symbolism of the Passion afforded the initial inspiration. Had any influence like illustrations in religious works, etc., been involved, the area concerned would surely have been more widespread and the period longer.

2. Slabs at St. Mary's, New Ross.

In this connexion it may be noted that certain headstones in some of the midland churchyards of England incidentally provide a parallel. Thus Caron Blake³ has commented on a distinctive group of 18th century designs—many of them signed—that he observed in Worcestershire and Gloucestershire. Though some of the subjects are quite ambitious (the Good Samaritan, Abraham and Isaac, etc.), nevertheless he considers that they were developed by individual craftsmen from the simpler motives so much used in the districts concerned—*e.g.* flowers, foliage, scythe, hour-glass, etc.—rather than from actual biblical illustrations. No imaginable connexion, of course, exists between this work and the Irish examples, but it has been referred to because it is interesting to find another contemporary school of monumental art of a similarly limited and localised kind.

If the *exact* source of inspiration for the Irish Crucifixion designs is not, as yet, satisfactorily defined, there is certainly no doubt about the importance of certain geographical factors. Thus modern stone-cutters in the town of Wexford point out that since the south of the county lacks good quarries, "in olden times" the stone-cutters invariably came from the northern borders, where they could get opportunities to learn and practice their trade. Moreover, as it was from these stone-cutters that the small class of "monumental specialists" was drawn, the obvious tendency was to do as much work as possible near the quarry centres. Though stones of the better qualities might be sent considerable distances, costs of transport had to be considered; consequently it was a recognised practice for the "specialists" to travel round conveniently adjacent areas so as to execute orders in whatever local material might be available, and according to the requirements of their respective patrons. The sometimes amazing differences in the standard of the execution of similar patterns—ostensibly done by the same man or his apprentices—is thus partly explained, as is the temptation to copy popular ideas from each other's patterns. But any attempt at dating designs from their accompanying obituary details can only be regarded as tentative. The incalculable time-lag between the obituary date and the actual erection of a memorial stone is further complicated by the possible extra delay involved by this tradition of waiting for the itinerant cutters.

DENNIS CULLEN OF MONASEED.

It is this question of obituary dates and the unknown time-lag which makes it a little difficult to determine who exactly was the first to introduce the Crucifixion scenes on the Wexford-Wicklow-Carlow stones. Possibly some of the crude, unsigned patterns in the old graveyard at Kilnenor, in the mountains near Arklow, are really amongst the earliest attempts. However, the point is not a vital one as there can be little doubt that (whatever the initial source of inspiration) Dennis Cullen of Monaseed was the first to execute *any large number* of signed patterns displaying various elaborations of the Crucifixion theme. Actually his main activities covered a very small portion of the limited area already referred to, being practically confined to parts of S.E. Co. Wicklow and N.E. Co. Wexford. A few exceptions do occur, of course, as at St. Maur's in north Co. Dublin; at Hacketstown in Co. Carlow, and at Killincooly, Ardeavan and St. Mary's, New Ross, in south Co. Wexford, but the real concentration of his work is to be found in the older graveyards between Glendalough and Rathnew, Kilnahue and Gorey. As much of this area lies within reach of the Avonmore, that river basin may have been an important geographical factor

3. Birmingham Archaeological Society, Transactions, vol. 51 (1925-26), pp. 10-18.

for travel and transport, just as the presence of good material nearby made Monaseed a fairly convenient working centre. That Cullen regarded Monaseed as his base is evidenced not only by the "signature" stone at Glendalough inscribed "Dennes Cullen stonemason Monaseed", but by other signed stones giving the address of Monaseed on them too. Moreover, local tradition still associates him with the neighbouring Slieve Bawn quarries, and with Mr. Breslin's house on the Monaseed-Holyfort road. The absence of decorated stones in the graveyard at Monaseed is consequently somewhat disappointing; but there is ample compensation in the amazing wealth of patterns (including ones by Byrne and others) that are still to be seen at Kilnahue and Kilnenor—both important graveyards fairly near Monaseed and having particularly revered associations and both containing some examples which appear to belong to the early stages of Cullen's work. Thus at Kilnahue, the memorial to Daniel Byrn, who died in 1769, despite the boldly cut signature "Dennis Cullen", lacks some of his later assurance in the arrangement of motives. The effect of the beautifully executed mounted centurion in 18th century costume is rather spoilt by the small figure of the Virgin crushed up to the horse's head⁴ and these motives on one side of the central Crucifix are poorly balanced by an angel's head, a winged praying figure, a cock and pot and the now partially obliterated form of Stephaton with his lance, on the other side. Much the same criticism applies to the somewhat similar (unsigned) design commemorating Elinor Boulger, who died in 1770, whilst four other stones with later obituary dates and only displaying the central crucifix and two subsidiary motives suggest by their simplicity that they were cheaper productions.

Indeed the factor of cost of production must not be forgotten. The amount of time and labour involved in the execution of the more complicated designs—whether by Cullen or his contemporaries and successors—must have been reflected in the price demanded. Consequently Cullen's work can be roughly grouped according to the quality and elaboration of the decoration. Designs with the three crucifixes and many subsidiary motives like the "signature" stone at Glendalough, must be regarded as the most expensive. They could only be satisfactorily worked in the closer-grained material that had often to be brought from a distance, whereas patterns like the Byrn and Boulger examples, with a single crucifix and fewer accompanying motives, are to be found so frequently that they surely represent the average-priced class "B" style, that could be executed in more ordinary and possibly local material. Lastly there are the simple and usually unsigned designs with only three or four motives—presumably the cheapest class "C" type—if not often merely the work of imitators and apprentices.

Unfortunately many of the stones at Kilnenor are so affected by lichen and weathering that satisfactory photography is impossible. This hardly matters so far as the half dozen unsigned class "C" patterns are concerned, but allows no chance of properly recording what may be one of Cullen's earliest signed designs—the stone to Rose Mullagan *ob.* 1761. It is not unlike the Byrn stone at Kilnahue, however, and gives the same impression of having been cut before Cullen had fully developed his own particular technique. Another pattern bearing Cullen's signature, and also at Kilnenor, commemorates N. Bolan, who died in 1778. It is mainly of interest for showing the cock on the traditional pillar instead of rising out of the pot of the Apocryphal stories.

4. Perhaps added to disguise an awkward flaw in the stone. Owing to its position it is impossible to get a good photograph.

Glendalough is relatively far from the Monaseed base, yet it is there that an important collection of Cullen's designs is to be found. The "signature stone" inscribed "Dennes Cullen, stonecutter, Monaseed" has already been mentioned as outstanding (Pl. 1). It was erected to Elizabeth Roach, who died in 1775. With its three crucifixes and numerous subsidiary motives it has many features in common with the comparatively less well preserved and small group of class "A" examples occurring elsewhere, but the figures are arranged in a particularly careful and pleasing fashion. Moreover much attention has been paid to certain details—the diapering of the church; the cut of the soldiers' contemporary 18th century uniforms, complete even to the flaps of the pockets and the patterned saddle-cloth of the mounted centurion's horse. Then there are the two typical figures near the central crucifix—the kneeling crowned Virgin of the Rosary and the harpist seated on a Chippendale-styled chair. These surely represent Cullen's version of the mediaeval convention whereby David, the singer of the Old Testament, symbolised the old dispensation, and the Virgin the new dispensation. By comparison, the three crucifixion figures and Stephon with his lance that pierced the side of Christ, are interpreted in a more formal way, and nearer the old tradition of the Irish High Crosses. Finally the very fullness of the signature and its valuable clue to Cullen's trade and address suggests that he not only took a justifiable pride in the execution of this memorial, but also that it may have been one of his first orders at Glendalough. Owing to the unknown time-lag, the actual erection might have been earlier than the now badly weathered stone to Thomas Grant, *ob.* 1773, which is marked "Dennis Cullen, Monaseed".

Several of the other signed specimens at Glendalough are in such a poor state of preservation that only a general idea of the original patterns is discernible—just enough to show that they are all variants of the normal class "B" type. But that to the brothers James and Patrick Malone, who both died in 1786, is fortunately in a better condition, for it reveals architectural embellishments about the central crucifix that are an interesting and possibly later innovation in Cullen's patterns. Consequently even the plain signature "D. Cullen" is valuable, as it helps to identify the carver of other unmarked, yet somewhat similar designs.

Of the many unsigned examples in Cullen's style at Glendalough, the most notable is that in memory of Andrew Byrne of Greenane, *ob.* 1789 (Pl. 2). Outside pilasters, like those on the signed Malone pattern, float an angel and a winged device, whilst beneath them stand two figures representative of life and death—the former with waving ribands and holding a staff, the latter a skeleton with scythe and hour-glass⁵. Two soldiers cut in the typical Cullen manner guard the corners, and the whole is executed so much in his style that it may be tentatively classed as a special order belonging to a more sophisticated period of his work. Also of interest is the very simple pattern *repeated* on the three stones to Hugh Healy, Arthur Doyle and J. and A. Murray of c. 1771, 1779 and 1779 respectively. On all only three motives appear—central crucifix and two attendant figures—but the simplicity of the three large figures is most attractive, and though the designs are unsigned, the careful delineation of the soldiers' cut-away coats, hats, and even the long queues of hair, all suggest execution by Cullen himself. Fortunately the stone to the Murrays is in fairly 'good condition, so that their features are still discernible, for most of the other unsigned (Cullen) designs⁶ at Glendalough are so weathered that the finer details are now practically obscured.

5. Similar versions of these figures that are of obviously different workmanship are to be seen on stones of c. 1808 and 1810 at Kilcolman (or Kilcommon), and Killadreenan.

6. Those to M. Healy, *ob.* 1773, and J. Sullivan, *ob.* 1779, rather resemble the Malone pattern.

As it would be very tedious to deal here with all the places where Cullen's patterns have been found, reference can be made to the general tabulated summary at the end. Though he seldom *absolutely repeated any one pattern*, and there is almost always some ingenious variation to be noticed, nevertheless the choice of motives and manner of execution is so much the same that a detailed description of each stone is unnecessary. For instance, the old graveyards at St. Mary's (New Ross), Clonatin, Castlemacadam and Ennisboyne or Three Mile Water all have signed "A" class specimens with the three crucifixes and a veritable "*Biblia Pauperum*" of subsidiary figures and details. Again at Whaley Abbey, Ballintemple, Templeraíney, Glenealy and St. Maur's (near Rush), there are good "B" class patterns, both signed and unsigned. It is from some of these better preserved specimens that an idea can best be obtained of what the weathered or broken stones of similar types at Macreddin, Rathnew, Castletimon, Preban, Redcross, etc., etc., must originally have been like. Thus the slanting position of the stone to John Pluck, *ob.* 1778, at Glenealy, prevented much weathering, and so allows unimpeded observation of Cullen's vigorous delineation of the lance and sponge bearer; of the delicate ornamentation of the edges and pedestal of the cross; of the careful execution of the Virgin's crown and rosary, and of the winged harpist (Pl. 3). Two more styles are well represented by the stone of *c.* 1784 to John Graham at Whaley Abbey, and that of *c.* 1776 to Michael Field and his wife (alias Archbold) at St. Maur's, near Rush⁷. In the latter the church has a particularly well-defined weathercock on the steeple, whilst the unusual form of the signature "Dennis Cullen Co. Wexf." may be due to the distance from Cullen's other work.

As well as these examples of standard types, however, there are just a few other specimens that require individual notice. Thus the signed stone at Kilcolman or Kilcommon (near Rathdrum) dedicated to the Rev. Bryan Byrne, *ob.* 1776, has several interesting features. It is the only example observed so far, where Cullen's carving commemorates a priest; the elaborate church is further embellished by two small figures on the roof; and the subsidiary motives are so crowded and so numerous that it looks as if the smaller ones had been added to comply with the requirements of a "special order".

Then there are a few unusual patterns that have no relation at all to any of Cullen's interpretations of the crucifixion scene. Indeed these are so limited in their symbolism that it can only be presumed that they were "special orders" for Protestants—a supposition borne out by the names in the respective obituary notices and one which would explain the sparsity of motives that could be employed. At Gorey, for instance, the only decoration on the stone to Mary Godkin, *ob.* 1770, is a large church, a kind of rose ornament and the signature "Dennis Cullen" cut above the church; and on the stone to Robert Webster there is only a church and a tree with a curious rounded base⁸. More elaborate versions of this kind, however, appear at Hacketstown, on the two signed stones of *c.* 1770 and *c.* 1768 commemorating George White and James and Ann Jackson, respectively. Though the top of the former stone is broken, it is still possible to see a characteristic church (this time with a tree, a man and a dog on its roof) as well as an almost unique representation of a contemporary carriage with driver and horse (Pl. 4). Traces of two more trees can also be just discerned, and similar trees appear not only on the plainer Jackson stone, but again on unsigned though similar work at Inch.

7. Cullen's employment here may have been due to the Archbold connexions with Co. Wicklow and Co. Wexford.

8. *c.f.* Unsigned stone of *c.* 1768 to William Rich at Old Kilbride, near Wicklow.

Much has been said about the unfortunate effects of weathering, growth of lichen, etc., but such natural causes have not always been the only agencies of destruction. Even as near Dublin as Kilcoole it is possible to see where an attempt was obviously made to "modernize" what must once have been quite a good Cullen pattern. Thus the stone to Robert McCormick, who died in 1784, still reveals a central crucifix, angels' heads, Virgin of the Rosary and a representation of St. John robed in 18th century costume and holding a chalice. But the other motives have been virtually obliterated by the insertion of two small marble crosses, whilst the addition of the words "Glory be to God on high" above the older "Consumatum est" has removed any possible trace of a signature.

It is possible that more of Cullen's stones, and even fresh designs, may yet be located. Nevertheless the examples noted above provide a fairly adequate survey of his work. That most of it was done during the years 1760-90, with an optimum period *c.* 1770-85, is obvious; that he varied his designs from a set of stock motives—whatever their exact origin—and executed them in a characteristic manner, has been emphasised in text and illustrations. Finally there is the beauty of the lettering of the accompanying obituary details. Even in an age when good lettering on stone was the rule, rather than the exception, Cullen's inscriptions are remarkable and entirely in keeping with the graceful *depth of the relief of his patterns*. It is this lettering and this depth of relief which distinguishes his work from that of successors of the same name. Thus there are quite creditable designs of a different type at Clonatin, Kilnenor, etc., that are also signed "D. Cullen". But these are *thinly engraved* rather than carved, and the degeneration to which this too easily worked form of decoration could come is to be seen in the crudely scratched crucifixes and cherubs' heads on certain stones of *c.* 1825-40 at Avoca and elsewhere, which are even more ambitiously signed "Dennis Cullen, sculp. Ballintombay", and presumably done by yet another member who attempted to carry on the family traditions in monumental art.

MILES BRIEN.

Miles Brien or O'Brien—for he used both forms indiscriminately—appears to have been one of Cullen's most important contemporaries and successors. Though many of his signed and unsigned designs had been located in central Co. Wexford, it was only recently that a fuller inscription—giving an address—was found. In the summer of 1947, however, it was noticed that at St. Stephen's, New Ross, the badly weathered stone to Anne Welch, *ob.* 1789, was inscribed "Cut by Miles O'Brien from Raughduff⁹ near Killan" (Pl. 5).

This valuable counterpart to Cullen's "signature stone" at Glendalough thus affords a ready explanation for the distribution of Brien's stones from Kilmyshall to Old Kilcavan and from St. Mullin's across to the coast at Killincool. With Killan as a working base—not too far from the quarries of the Newtownbarry area—use could be made of the basin of the river Slaney, and hence, presumably, the concentration of his work in the older graveyards of that area (Edermine, Killurin, Carrig, etc.), as well as in more isolated places like Templeshanbo, near Killann itself. Again, despite its poor condition, the Welch stone adds to the number of Brien's absolutely identified designs, and this too is important because he left fewer signatures, and varied his schemes of decoration less than did Cullen. Apart from a few much simplified versions of certain patterns (which were probably chiefly a matter of price), Brien's work

9. *i.e.* Rathduff.

can be classified into two main groups. In the first group, which is comparatively small and apparently the earlier in date, the schemes are *asymetric*, and though these interpretations of the Crucifixion scene are quite individual, yet there are signs either of Cullen's influence, or of the unascertained influence that inspired Cullen. But in the numerically larger, and almost certainly later, second group, the schemes are *purely formal* and more like those of J. Byrne, some or all of the motives being repeated on each side of a single crucifix only.

The Welch stone is thus representative of one of the more elaborate designs in group A, whilst the addition of an address to the signature suggests that it was regarded by Brien as a very "special order" indeed. In its original state the decoration must have been quite effective. Even still, besides the three crucifixes, it is just possible to discern some subsidiary features already familiar from Cullen's work—Virgin of the Rosary, soldiers in 18th century costume—as well as fresh motives peculiar to Brien's own style, *i.e.* the two stiff cone-shaped trees¹⁰, and a curious crowned angel bust. Moreover, when this pattern is compared with other signed examples of the same type, it can be seen how valuable such signatures are in helping to establish the identity of related, but unsigned designs. Thus the stones of *c.* 1790 to L. Bourke at Adamstown (signed "Miles Brien"), and of *c.* 1789 to B. Kenny¹¹ at St. Mullin's both display the same kind of workmanship as the Welch pattern, and as several unsigned patterns at Adamstown, Killegney, Killurin, Kilmysshall, St. Mullin's, Templeludigan, etc.

The arrangement of the principal figures, however, is much the same in all these related designs, and it is a pity that at this stage Brien's technical skill was still comparatively undeveloped. Consequently quite imaginative patterns often look like crude versions of Cullen's better executed styles. And these remarks apply also to the *simpler asymetric schemes*—*i.e.* those with only one central crucifix and fewer attendant motives¹². The unsigned memorial of *c.* 1789 to D. O'Neal at St. Mullin's may be regarded as fairly representative of this type; though the Virgin with sharply defined cape and halo is an interesting and not altogether usual feature of Brien's work.

Incidentally it may be noted that practically all Brien's asymetric designs are located in the Adamstown-New-Ross-St. Mullin's-Kilmysshall area, and that the obituary dates range *c.* 1785-91. Some of the formal patterns occur there too, but it is mainly further east, where his stones and Byrne's appear so often in the same graveyards, that virtually only the formal types are to be found. If this fact and the earlier obituary dates have any significance, then it would seem that in later years Brien worked further afield, came in contact with fresh ideas and developed more easily executed patterns that suited the demands of the time and his, apparently, increasing orders.

Anyway, whatever the exact reason may have been, there is no doubt that from about 1791 on, Brien's work becomes more formal and in some respects more like Byrne's. Certain individual motives are still used, and new and distinctive ones introduced, but the elaborate patterns with the three crucifixes and accompanying motives like Cullen's are no longer attempted. Instead there is always a single broad crucifix showing Christ with inclined head, wig and perizoneum—as in Byrne's work—and some of the other features are also in

10. Surely Brien's version of the Eastern "tree of life".

11. Marked "M" under the church. The "B" has weathered away.

12. Several signed and unsigned examples are to be seen at Chapel, Ballybrennan, Templeludigan, etc., but all are badly weathered.

Byrne's style. Moreover, not only are the "subsidiary" figures and motives nearly always repeated on each side of the central crucifix, but repetitions of exactly (or almost exactly) the same designs are to be found again and again.

Thus one set of these oft-repeated patterns includes two *robed and haloed profile figures, flanked by sinuous foliage sprays* bearing a dove in each. The figures—presumably the Virgin and Mary Magdalen—are entirely in Byrne's style. So too are the corner motives of the sun and moon, symbols of eternity. Two stones so decorated and commemorating M. Flood (*ob.* 1793) at St. Mullins, and M. Ryan (*ob.* 1795) at Castle Ellis, are initialled "M. B.", while another of *c.* 1794 at Templeshanbo, is fully signed "Miles Brien". The same design, but minus the dove, also appears above the full signature on the stone of *c.* 1792 to Martin Harris at Kilmysall. Still other signed and unsigned variations with similar obituary dates are to be seen at Killurin, Ballybrennan (near Chapel), Ardcolm, Adamstown, etc., and simpler versions without sprays or doves at Old Ross, Killann and Saunderscourt.

In another set of designs the main characteristic is a *facing figure of the Virgin wearing a wig and fashionable panniered dress of the period*. The signed pattern of *c.* 1794 to R. Foley at Whitechurch is a good standard example of this type. But there are many similar versions (both signed and unsigned) at Adamstown, Rossdroit, Castle Ellis, Ballylinen, Killilla, etc., that vary slightly in other details. For instance, on the fine unsigned stone to E. Kavanagh (*ob.* 1794) at St. Mullins, the stiff foliage is replaced by flying figures and small trees (Pl. 7). Then there are also a few designs showing *both* haloed figures with panniered dresses and accompanied either by angels or large chalices. As the signed specimens at Old Kilcavan in Bargy, and at Whitechurch are both *c.* 1797, and therefore a few years later than most of the single panniered figure themes, it may be surmised that they indicate a slightly later development in style.

Still more numerous, though less varied in subsidiary details, are the patterns with the *facing haloed figures of the Virgin and Mary Magdalene garbed in distinctive short cloaks*. These cloaks are particularly interesting because it is possible that they represent the old "half mantle" peculiar to Co. Wexford alone. And since Brien so often depicted the fashionable panniered dress, it is not unlikely that his delineation of these short cloaks also came from contemporary and local costume—as distinct from the somewhat shapeless and conventionalised garb of the figures apparently modelled after the Byrne tradition. Anyway the cloaked figures are often attended by two of the conventionally clad profile figures—as on specimens at Killann, Rossdroit, etc., and on the fine, though unsigned example of *c.* 1801 to Judith Keaten at Adamstown, where the latter carry large sun-flowers (Pl. 8). In almost innumerable instances, however, these attendant figures are replaced by *large chalices*—such as are depicted on the unsigned stone of *c.* 1798 to E. and P. Treanor, at Adamstown, and on signed stones of *c.* 1800-1810 at Edermine, Killann, Killincooly, Killurin, Templeludigan, etc., etc.

Though the particularly popular versions of the formal patterns all fall into the fairly well-defined groups noted above, there are, of course, other variations. Occasionally the figures are kneeling instead of standing, etc., etc. But such minor differences are of little importance and more interest attaches to a few unusual specimens that surely represent "special orders". Thus there is a curious semi-formal pattern at St. Mullins which shows a serpent beneath the crucifix supporting two small trees, whilst the similar profile figures are flanked by two elaborate edifices—presumably symbolic of the tomb and the temple of the heavenly Jerusalem. There are no obituary details visible beyond the

inscription "Erected by Robert Bealey in memory of his children", but happily the signature "Miles Brien" appears at one side, for the buildings are unusual, and the crucifix triumphing over the serpent of evil is a feature of Byrne's rather than of Brien's work. Still more curious again is the completely formal pattern on the memorial of c. 1796 to James Carty and his wife at Whitechurch. It bears the signature "M. Brien" and though the crucifix and attendant figures are in the normal style, there are unique additions of two small medallions containing profile busts. Perhaps these are meant as portraits of the deceased; certainly they are in keeping with the period, yet amazingly sophisticated and ostensibly out of place in the accompanying folk-art presentation of the Crucifixion scenes.

When sufficient allowance has been made for differences in material and degrees of weathering, etc., the execution of all the examples mentioned so far is sufficiently similar to be regarded as representing the work of *one man*—who may for convenience be called the *first Miles Brien, c. 1780-1810*. But that, like Cullen, he had imitators, as well as possibly legitimate successors, is obvious from many other inferior stones, both signed and unsigned, of similar and dissimilar styles, of contemporary and also later dates. Thus there are *thinly engraved designs* of c. 1815-30 where the decoration is mainly arranged in panels embellished with spreading foliage sprays and scrolls set low down on the stones. In these the Brien signature surely refers to another member of the family of the same name. Again, at St. Mullins, New Ross, Killann, etc., there is a small group of designs somewhat nearer the real Brien tradition, of about the same date, and occasionally signed either "T." or "M. Hancock". As further development by contemporaries these could be very interesting. But unfortunately the relief is now so low that little can really be seen.

JAMES BYRNE.

James Byrne is in some ways both the most important and the least interesting of the major workers connected with this south-eastern school of monumental folk-art. The most important, because of the amazing quantity and wide distribution of the stones bearing the mark "James" or "J. Byrne"—they are to be found in most old graveyards throughout Co. Wexford, from Kilmyshall and Kilnenor in the north to Lady's Island in the extreme south, and also in Co. Carlow at Clonegal, and in Co. Wicklow at Ballintemple and Ennereilly. The least interesting, because certain "stock" patterns are repeated almost *ad nauseam*, whilst even the more elaborate designs lack some of the fine technique and originality that is to be seen in the better work of Cullen and Brien. Then too, there are the divergent qualities of many of the signed as well as unsigned stones in Byrne's style, and the unusually long range of obituary dates extending from about 1775 to 1815.

In the absence of direct information to explain an output so abnormally large and widespread, of such varied quality and over such a lengthy period of time, only a tentative solution can be offered. But it does at least seem reasonable to suggest that Byrne's business may have been more in the nature of a firm; that most of the actual execution of his simpler stock patterns may have been entrusted to apprentices and relatives, and that practically only the more elaborate and costly orders were really undertaken by himself.

Since no form of address has so far been found on any of Byrne's stones, it is fortunate that he is still remembered in local tradition. Thus it is known that his family had long been associated with the quarries near Monaseed and elsewhere in north Co. Wexford; that he came from Clone, near Ferns, to Enniscorthy;

that at least one son (there were probably others too), Pat, or P. Byrne, carried on his father's craft in a rather different style till well into the 19th century; and that a grandson, Ned Byrne, who died at Castlebridge, near Wexford, in 1922, was also a stone-cutter. With Enniscorthy as a working centre it is easy to understand the particular concentration of his specimens at places in the Slaney basin like Ballyhuskard, Castle Ellis, Edermine, Killurin, etc., as well as at Carrig and round the town of Wexford. Of the contacts that influenced the development of his style, however, tradition is not so clear, and the story that he got some of his initial training at Monaseed is certainly not corroborated by any apparent connexion between his style and Cullen's. Nevertheless there may be some significance in the number of Byrne's signed stones nearby, at Kilnahue and Kilnenor, and still more in the similarity of his designs to the few patterns signed "Martin" or "M. Kenney, Ballylough"¹³ that are to be found at Ferns, Kilnahue, Kilnenor, Kilcavan near Gorey, and Drinagh near Wexford. As Ballylough is the name of a townland near Kilnahue both Kenney and Byrne may have shared some mutual, and so far untraced, source of inspiration. Or perhaps both were merely influenced by the demand that obviously existed for such patterns as could be produced cheaply.

Although it would be useful to have exact information on these matters, the lack of it does not prevent a brief survey of the kind of decoration done by Byrne and his school. And since most of the designs conform to a number of related schemes, it seems best to describe them in groups, rather than in detail. Thus *the basic, or stock types* portray Christ with wig and perizoneum on the single central crucifix and this is shown either (A) between two low pillars or (B) triumphing over the serpent of evil, and over death as symbolised by Adam's skull. The Virgin and the Magdalene, either in profile or facing, stand or kneel nearby. Both have haloes and conventional draperies, but the Virgin wears a clearly defined crown as well. Finally the outer spaces are usually filled by the sun and moon (emblems of eternity); but sometimes seraphims, cherubs' heads and round-shaped churches or tombs are added, or appear instead. It is these comparatively easily executed types—where a little variety could be obtained without much effort of thought or workmanship—that occur so frequently and that must surely have entailed some form of "mass production" to meet the demand. It is unlikely that *any one man* could personally have worked all the many hundreds of examples that are still to be found.

Attention having been paid to the above types, it is permissible to turn to the better executed and less frequently repeated variations and amplifications that were presumably wholly worked by Byrne himself. Thus at Kilnenor there is the stone to Edward Byrne (who died in 1779) where the pattern includes several leaning branches and a stiff border of conventionalised pine trees. It is fully signed "James Byrne" and as no replica has so far been found, may represent an early and very "special order" indeed. Moreover, it is just possible that the branches symbolise the four woods—cedar, cypress, palm and olive—from which, according to mediaeval tradition, the cross of Christ was composed. Anyway a *leaning palm branch* is an important feature in the small group of not unrelated patterns (signed and unsigned) to be found at Meelnagh c. 1771; at Edermine c. 1788; at Donaghmore and Ferns c. 1790 (Pl. 9), and elsewhere.

Another group which seems to belong to about the same period is distinguished by curious *busts with large aureoles of rayed locks*. These replace the sun and

13. The tomb and elaborate temple appear on a signed design of c. 1767 at Kilnahue, though most of Kenney's other stones conform to Byrne's "basic" type.

moon in certain otherwise ordinary patterns of c. 1775 at Lady's Island; of c. 1782 at Ballybrennan, near Rosslare; of c. 1790 and 1791 at Ferns. But at Kilmyshall, on the fine memorial to Miles Moor, *ob.* 1791, only one bust appears, and that is enclosed in a Gothic arch (Pl. 10). Incidentally the purport of these busts is somewhat obscure. If they are meant to symbolise the sun and moon, then it is curious that one, or both, occur on various other stones as well as the sun and moon—*c.g.* at Rathmaekke and Carrig. Anyway, whatever the symbolism involved, there is no doubt about the rather attractive simplicity of these particular applications of the basic theme. And these qualities are also displayed in the rare patterns on stones of c. 1797 at Kilmyshall; of c. 1799 at Rathmacknee¹⁴ and Mayglass, where a little *cherub is portrayed within the circle of the moon.*

So far it is mainly the less elaborate variations that have been described. For those who were (presumably) ready to pay more, several quite ambitious types, involving fresh motives, were available. Thus there is a group characterised by the introduction of *two winged figures* amusingly clad in short trousers and abbreviated tunics, well imbricated to simulate feathers. The same pattern often includes an unusually stiffly garbed Virgin and a soldier in 18th century costume—this latter being one of the few recognisable items from Cullen's style that appears in Byrne's. Unsigned versions of c. 1790 are to be found at Ferns; signed ones in poorer condition, yet of about the same date, at Churchtown, near Rosslare; at Kilcavan, near Gorey; at Edermine, etc.

Judging from mere numbers, even more popular were the patterns that have a *vast temple* as the principle distinguishing feature, for instance, specimens of c. 1791 at Kilmyshall; of c. 1792 at Churchtown, near Rosslare; of c. 1794 at Carrig, etc.; of c. 1795 at Lady's Island, Kilnenor, and Kilcavan, near Gorey. Nor is the temple of the heavenly Jerusalem the only unusual motive in these particular efforts of Byrne's to represent the Crucifixion scene in a grand manner. A tall palm tree, an acanthus-like ornament and a male figure in place of the Magdalene—sometimes holding an axe, sometimes with wings and holding out the crown of victory—all add to the effect. Slightly simpler versions also occur, *c.g.* at Limerick or "Limbrick", near Gorey, at Tomhaggard and at Ardavan. But these are naturally less spectacular than the few rather exceptional instances in which a *kind of medley of the characteristic features of several distinctive patterns has been attempted.* The signed stone of c. 1774 to William Furlong at Carrig is perhaps the best example of these (Pl. 11). Indeed it is so elaborate that it may well represent not only an expensive "special order", but also the purchaser's own choice of motives! Other varieties of similar "mixed" patterns that have been found at Edermine, Whitechurch, and again at Carrig, are not quite so complicated.

From the range of examples described and illustrated above, it can be seen that there are some outstanding differences between the character of the work done by Byrne and his school and the productions of Cullen and Brien. Thus, even in his more ambitious designs, Byrne never attempts to portray the three crucifixes, nor a crowded foreground of figures; whilst exact repetition of designs is more the rule than the exception. More important still is his tendency towards symmetrical repeats in the arrangement of his motives, for though such formalism was probably adopted to simplify and aid rapid execution, it also implies less understanding of the mediaeval traditions that are so naively embodied in most of Cullen's and in Brien's earlier work. The constant recurrence of the

14. On this stone to John Fortune there are two birds on foliated standards instead of the Virgin and Mary Magdalene.

conventionally draped figures of the Virgin and the Magdalene, for instance, scarcely compensate for the entire absence of the Virgin of the Rosary, of the Harpist Singer of the Old Testament, of the cock and pot, etc. Merely to suppose, however, that Byrne lacked ideas may not be quite just. The gradual changes which were taking place in so many spheres of industry from the end of the 18th century on have to be remembered too, for they all tended to the increase of uniformity and mass output and the decrease of originality and individual craftsmanship. Yet another influence was the increased use of limestone in the early years of the 19th century. It was almost too easy a material to manipulate and so seems to have helped to dull the ingenuity of the carver. For instance, the many stones round Wexford of c. 1790-1830, that bear Pat Byrne's signature, exemplify this change. There is every reason to suppose that he could have done cutting in relief like his father, yet the majority of his specimens are poorly engraved with monotonous repetitions of chalices, monstrances, etc., and little else.

HUGH ROGAN.

As it would take up too much space to deal in much detail with all the related work found in the Wexford-Wicklow-Carlow area, a brief note must suffice for just one of the other relatively minor "specialists" that have not already been referred to. Thus the name of Hugh Rogan would be unknown were it not for one stone—signed "Hugh Rogan Fecit"—of c. 1772, at Donaghmore, that was erected to Anne Brennan and others of her family. Apart from a crudely executed crucifix and some cherubs' heads, the pattern is entirely composed of certain emblems of the Passion; but whereas objects like the ladder, pincers, nails and hammer are faithfully depicted, the arrangement of the pile of the thirty pieces of silver is delightfully fantastic, whilst a basket-shaped object defies satisfactory identification. Nevertheless it is the peculiar aspect of these last two motives, and particularly of the pile of silver, which suggests that Rogan may also have done several rather similar, but unsigned patterns at Kilnenor, and the use of easily-weathered material (for the stones at Kilnenor are in very poor condition) may explain the apparent absence of further examples.

THE CO. LOUTH SCHOOL.

Evidences of this independent, yet almost contemporary school of monumental art, have only recently been noticed, and the area has not yet been fully surveyed. Nevertheless search in some thirty graveyards between Drogheda, Ardee and Dundalk shows that the more original styles seem to be confined to a few places in the eastern part of the county—Termonfeckin, Mayne and Dromin being rather richer in examples than Newtown Stalaban and Old Tullyallen (near Drogheda), Ballymackenny, Port, Richardstown, Kilsaran and Dromiskin. Though the total number of decorated stones is relatively small, the *variety of patterns* suggests that they represent the work of several men. But as these Louth craftsmen seldom put their signatures at the tops of the stones¹⁵, they cannot be identified so surely as the Wexford-Wicklow-Carlow ones. Otherwise local tradition points to similar conditions in both areas, *i.e.* some stone-cutters—especially from Drogheda and Dundalk—specialising in monumental art, travelling round to execute orders and obtaining the material from local quarries like Ardcull. Certain

15. A stone of c. 1808, at Dromiskin, however, is signed "L. Garvey Sculp." at the top. One of c. 1821, at Smarmore, has "Laurence Garvey Sculp. Dundalk" near the base, and it is possible that other similarly placed signatures have sunk out of sight.

families are mentioned too, for instance, the Garveys at Drogheda and Dundalk; but the information is not sufficiently detailed and consistent to connect particular names and particular stones with any degree of confidence, though further search may eventually provide some of the required data.

However, this lack of signatures does not affect the intrinsic merit of the Louth stones, and it is remarkable that they are either so badly weathered that the decoration is virtually unrecognisable, or else of such good quality slate or limestone that they have survived almost intact. Consequently there is a relatively higher percentage of undamaged specimens than in the whole Wicklow-Wexford-Carlow group, and also a comparatively greater range of subjects. Thus the Louth patterns include several variations of the *Nativity scene*—one of c. 1805 at Dromin (Pl. 6), and three of slightly later dates at Termonfeckin—all apparently done by the same unknown hand. Then there are *three different scenes illustrative of certain stations of the Cross*, and these surely represent the work of two and perhaps three more men, for the stone of c. 1799 at Termonfeckin differs considerably in style from that of c. 1785 at Ballymackenny (Pl. 12), and another at Termonfeckin of c. 1818. *Crucifixion scenes* occur too, the most ambitious versions being found on fine slate memorials of c. 1795 (Pl. 13) and 1826 at Mayne, and of c. 1821 at Port. Though somewhat naive these specimens lack most of the mediaeval symbolism of the Wexford versions. Nevertheless they are of interest, and the special manner in which the folds of the draperies is delineated suggests that they were all executed by the same man, and that he was also the carver of at least one of the stones with the Stations of the Cross.

A numerically large, but otherwise not very important group—usually boldly cut in coarse limestone—has as its chief characteristic *an altar with a crucifix and two candles supported by two kneeling angels*, e.g. Owen McCullen at Richardstown (Pl. 14). Judging from the number of almost similar stones, designs of this type constituted the "stock" pattern of the district, though not necessarily always executed by the same man. Thus some of the variations exhibit a whole array of subsidiary ornaments, others slight modifications of the central theme. One of the more unusual adaptations is to be seen on the "priests' stone" at Mayne (commemorating the Rev. James Corigan, ob. 1795), where the angels are replaced by an open book, a large chalice and a finely modelled three-quarter length bust of the deceased¹⁶. Nor is this the only *representation of the deceased* to be found on Louth memorials—Mary Hollogan herself is surely depicted on the stone of c. 1817 at Dromin, and Pastor Daly on the stone of c. 1822 at Kilsaran.

Moreover, besides these fairly well-defined styles there are also "miscellaneous" types that cannot all be described here. In any case only one is of special importance, and that is the stone of c. 1808, at Dromiskin, which bears the legend "L. Garvey sculpt." round the moulding at the top¹⁷. It was erected to various members of the "Duffey" family and is decorated on both sides, the front portraying a central crucifix, cherubs' heads, angel carrying a crown and St. George and the dragon; the back showing the Duff arms—though the crest and supporters are not *exactly* those of the Duke of Fife. Obviously these particular arms do not belong to the Duffy family; nevertheless their use here is interesting, and illustrates another activity of the itinerant stone-cutters. Especially in the north of Ireland they were frequently employed to cut coats of arms on the backs of head-stones. And, provided that the results were

16. Illustrated in Co. Louth Arch. Jour., vol. XI (1947), p. 204.

17. See footnote on p. 159

sufficiently magnificent, neither the stone-cutters nor the families concerned seem to have worried much as to whether the arms were correct or not!

CONCLUSION.

Much preliminary help in the finding of certain stones, etc., has been received from friends and correspondents, though practically all the graveyards mentioned here have eventually been visited personally (and some several times) in the course of the last ten years or so. Yet even in that short period changes have taken place. Growth of vegetation has often rendered a memorial that was easy to see one year, quite difficult to locate five years later. Similarly clearances for new burials have occasionally "unearthed" fresh evidence—especially in secluded places of particular sanctity like Glendalough or Kilmenor, where the wealth of carving already visible indicates that the spirit of penal legislation cannot, fortunately, have been very rigidly enforced. Further designs may thus yet be found. At the same time it has to be remembered that much has been nearly obliterated by weathering, lichen, and other agencies of destruction, and that, as most of these decorated stones are from 150 to 180 years old, they will, inevitably, gradually sink out of sight. Hence these attempts to record as much as possible about this form of "folk art" before the surviving evidence has completely disappeared.

Finally I wish to acknowledge my indebtedness to the *Royal Society of the Antiquaries of Ireland* for permission to use a few of their blocks for some of the illustrations reproduced here.

LIST OF CO. WICKLOW-WEXFORD-CARLOW GRAVEYARDS WITH SIGNED STONES.

D.C.=Dennis Cullen; M.B.=Miles Brien; J.B.=James Byrne.

The names of places with one or more interesting examples in fairly good conditions are *printed in capitals*, but there are often many unsigned patterns as well.

ADAMSTOWN, Co. Wex. (M.B.). Ardavan, nr. Wex. (D.C.; J.B.).

ARDCOLM, nr. Wex. (M.B.). Artramont, nr. Wex. (J.B.).

BALLINTEMPLE, Co. Wick. (D.C.; J.B.).

Ballybrennan, nr. Bree, Co. Wex. (M.B.; J.B.).

Ballybrennan, nr. Rosslare, Co. Wex. (J.B.).

Ballyhoge, Co. Wex. (M.B.; J.B.).

Ballyhuskard, nr. Enniscorthy (J.B.).

BALLYLINEN, Co. Wex. (M.B.; J.B.).

Ballymore, nr. Camolin, Co. Wex. (D.C.).

Ballyvaldon and Ballyvalloo, Co. Wex. (J.B.).

CASTLE ELLIS, Co. Wex. (M.B.; J.B.).

Castlemacadam and Castletimon, Co. Wick. (D.C.).

CARRIG, nr. Wex. (J.B.). Chapel, Co. Wex. (M.B.; J.B.).

CHURCHTOWN, nr. Rosslare, Co. Wex. (J.B.).

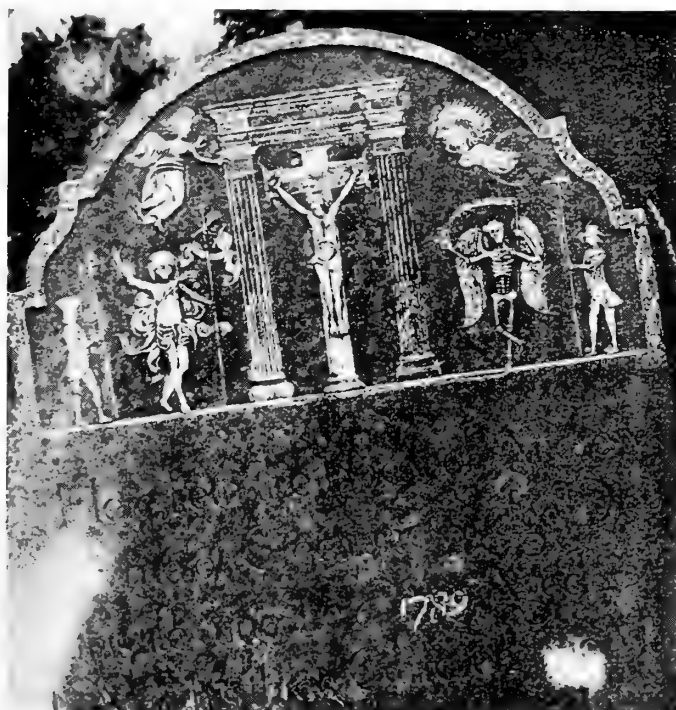
CLONATIN, nr. Gorey (D.C.; J.B.). Clone, Co. Wex., and Clonegal, Co. Car. (J.B.). CLONMORE, Co. Wex. (M.B.; J.B.). Crab Tree, nr. Enniscorthy (J.B.).

DONAGHMORE, Co. Wex. (J.B. and Hugh Rogan).

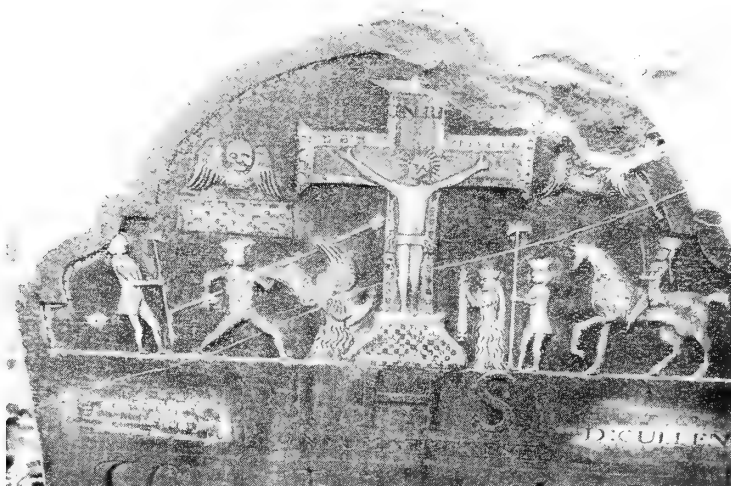
- Drinagh, nr. Wex. (J.B. and M. Kenney).
 EDERMINE, Co. Wex. (M.B.; J.B.).
 Ennereilly, nr. Arklow (J.B.). FERNs, Co. Wex. (M.B.; J.B. and M. Kenney).
 GLENDALOUGH and GLENEALY, Co. Wick., and GOREY, Co. Wex. (D.C.).
 Grahormack and Grange, Co. Wex. (J.B.).
 HACKETSTOWN, Co. Car. (D.C.). Inch and Kilcashed, Co. Wex. (J.B.).
 KILCAVAN, nr. Gorey (J.B. and M. Kenney). Kilcavan, s. Co. Wex. (M.B.; J.B.).
 KILCOLMAN or Kilcommon, Co. Wick. (D.C.).
 Kildavin or Murntown, nr. Wex. (J.B.).
 KILLANN and Killegney, Co. Wex. (M.B.).
 Killilla, Co. Wex. (M.B.; J.B.).
 KILLINCOOLY, Co. Wex. (D.C.; M.B.; J.B.).
 KILLURIN, nr. Wex. (M.B.; J.B.). Kilmachree, nr. Wex. (J.B.).
 KILMALLOCK and KILMYSHALL, Co. Wex. (M.B.; J.B.). KILNAHUE and KILNENOR, Co. Wex. (D.C.; J.B.).
 LADY'S ISLAND, Co. Wex., and Limerick or Limbrick, nr. Gorey (J.B.).
 Macreddin, Co. Wick. (D.C.). MAYGLASS, Meelnagh and Monamolin, Co. Wex. (J.B.). Monart, nr. Enniscorthy (M.B.).
 NEW ROSS; St. Mary's (D.C.; M.B. Also Hancock), St. Stephen's (M.B. and Hancock).
 Old Ross, Co. Wex. (M.B.). Preban, Co. Wick. (D.C.).
 RATHMACKNEE, Co. Wex. (J.B.). Rathnew and Redcross, Co. Wick. (D.C.).
 Rosdrecht, SAUNDERSCOORT, and Skreen, Co. Wex. (M.B.; J.B.). St. Catherine's (Churchtown), Co. Wex., and St. John's, nr. Enniscorthy (J.B.).
 ST. MULLINS, Co. Car. (M.B.).
 Templeludigan and Templeshanbo, Co. Wex. (M.B.).
 Templerainey, nr. Arklow (D.C.; J.B.).
 Templeshannon in Enniscorthy (J.B.).
 Three Mile Water or Ennisboyne and Tinahely, Co. Wick. (D.C.).
 Tincurra and TOMHAGGARD, Co. Wex. (J.B.). TOOME, Co. Wex. (M.B.; J.B.).
 Wexford Town, Maudlinstown, St. Michael's, St. Patrick's (J.B.).
 WHALEY ABBEY, Co. Wick. (D.C.).
 WHITECHURCH, nr. Wilkinstown Cross Roads, Co. Wex. (M.B.; J.B.).



GLENDALOUGH. To E. Roach, *ob.* 1775. "Dennes Cullen stone cutter Monaseed." [The "Signature Stone." P. 151.



GLENDALOUGH. To A. Byrne, *ob.* 1789. Unsigned. P. 151.



GLENEALY. To J. Pluck, *ob.* 1778. "D. Cullen." P. 152.



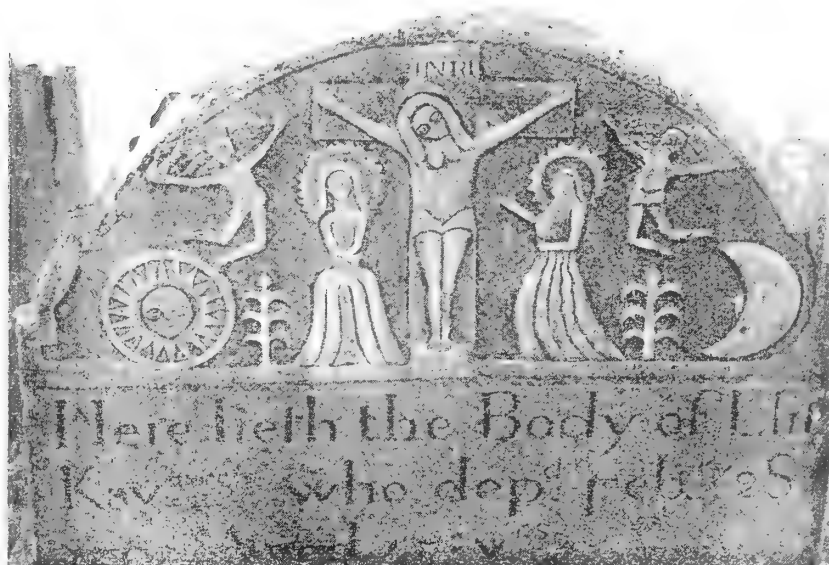
HACKETSFOWN. To G. White, *ob.* 1770. "Dennis Cullen." P. 152.



NEW ROSS (St. Scotland). — "See A. Welch, *ob.* 1789. 600 19 Miles O'Brien from Tanglebuff near Killan." — P. 154



NEW ROSS (St. Scotland). — "See A. Welch, *ob.* 1789. 600 19 Miles O'Brien from Tanglebuff near Killan." — P. 154



ST. MULLINS. To E. Kavanagh, *ob.* 1794. Unsigned. P. 155.



ADAMSTOWN. To J. Keaten, *ob.* 1801. Unsigned. P. 155.

FERNS. T. D. Breen, *ob.* 1790. Unsigned. P. 157.

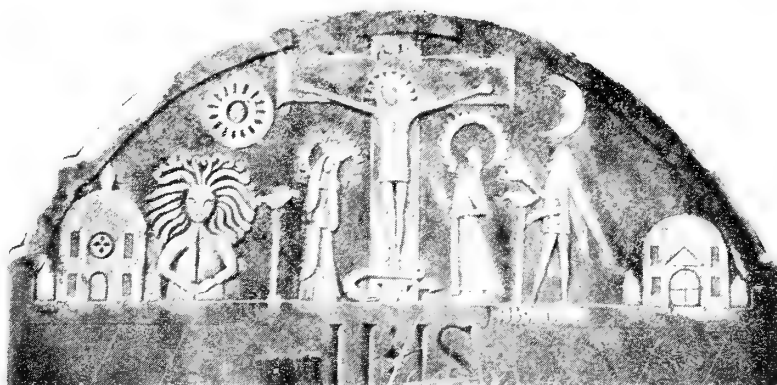


1



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Plate 11.



CARRIG. To W. Furlong, *ob.* 1774. "J. Byrne." P. 158.

Plate 12.



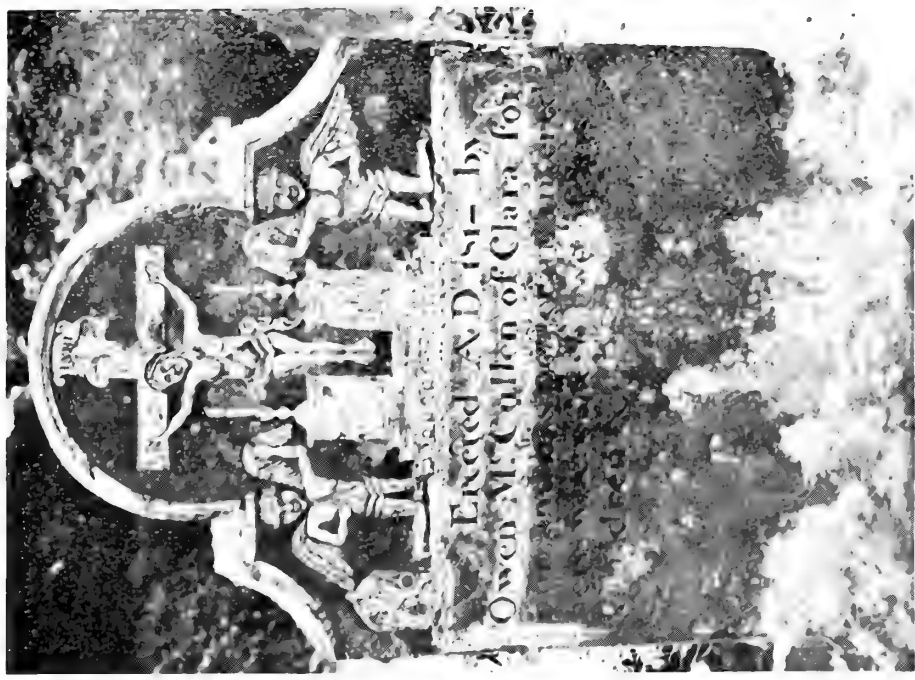
BALLYMACKENNY, Co. Louth. To R. Reynolds, *c.* 1785.
Unsigned. P. 160.

Plate 13.



MAYNE, Co, Louth. To J. Conwell, ob. 1793.
Designed P. 160

Plate 14.



EDDARDSTOWN Co. Louth. To O. McCullen ob. 1815
Designed P. 160

9th December, 1947.

ARTHUR DEANE, President, in the Chair.

“ HISTORY OF THE VIOLIN.”

Slides and Musical Illustrations.

E. A. A. STONELEY, Mus.Doc.(Edin.), Assisted by F. HAUGHTON, L.T.C.L.

[No abstract.]

15th January, 1948.

ARTHUR DEANE, President, in the Chair.

“ THE CATHEDRAL OF CHARTRES.”

Illustrated by Slides.

Mlle. FRANCOISE HENRY.

[No abstract.]

11th March, 1948.

DR. S. W. ALLWORTHY, M.A., M.R.I.A., Past-President, in the Chair.

“ POLLINATION AND FERTILISATION.”

Illustrated by slides and models of flowers prepared by Harold Bastin, Reading,
from the Collection in Belfast Museum and Art Gallery.

ARTHUR DEANE, M.R.I.A., F.R.S.E.

[No abstract.]

12th February, 1948.

 ARTHUR DEANE, M.R.I.A., President, in the Chair.

THE USES OF LIBRARIES.

J. J. GRANECK, M.A.

I am deeply appreciative of the honour the Society has done me in inviting me to join the long line of distinguished men and women who have preceded me on this platform. The roll contains several representatives of my own profession, including a number of former Librarians both of Queen's College and of the Queen's University of Belfast.

James McAdam, a foundation member of your Society and President in 1860, was the first College Librarian; he held office for only one year, but he laid the foundations of the present collections by initiating the compilation of a catalogue which departed from the usual practice by including a list of the books which McAdam considered ought to be acquired, either by gift or purchase. Since his time there has been close on a century of fruitful co-operation between the Society and the Library. A considerable number of the journals, received from Academies and other learned institutions at home and abroad in exchange for the *Proceedings* published by your Society, are deposited in Queen's Library and constitute a most valuable adjunct to research in many different departments.

Before I began the preparation of to-night's paper, I glanced through the titles of the numerous lectures delivered by McAdam at various times to meetings of the Society. I was particularly impressed by the versatility of this scholarly businessman who seems to have had more than a nodding acquaintance with many different branches of humanistic and scientific studies. He was a true amateur of learning, whose wide interests enabled him to speak with authority on a wide variety of subjects. In these days of intensive specialization and academic professionalism it is regarded as an act of extreme temerity for any scholar or scientist to venture beyond the strictly defined limits of his own subject. This development, however much we may deplore it, is both inevitable and irreversible and it is incumbent upon all those who are in any way concerned with education to adapt themselves to it while, at the same time, striving to mitigate its more undesirable features. Librarians are particularly concerned with this problem and it seemed to me, therefore, that I might usefully devote my paper to a consideration of the special functions of libraries in this age of scientific research and "cradle to grave" education.

The habit of collecting books is of the most respectable antiquity, but it is only comparatively recently that any attempt has been made, either in theory or in practice, to assign a specific place to libraries as an essential part of the public services. In the ancient world there were libraries in Mesopotamia and in Egypt, but they were confined to the use of priests and court officials. The earliest which has so far come to light was discovered at Nippur on the Euphrates where, in addition to 30,000 documents of a business character, several thousand literary texts inscribed on clay tablets and dating from about 2,000 B.C. were found. One of the documents in this collection is the Sumerian legend of the Flood. More than one of these cuneiform libraries have been found in the valley of the Euphrates, but we know very little about their organization and methods of

administration. One can assume that they had even more stringent regulations than present-day libraries about taking books out in the rain, but there is no authority for the story of the unsuccessful Babylonian author who built himself a house with his rejected manuscripts. In Egypt, libraries existed from the 2nd millennium onwards in the form of temple or palace archives. One of the most famous bore over its entrance the inscription "the hospital of the Soul," in Greek, which will be familiar to you from its adoption by Belfast's leading bookshop, where, however, it has been translated as "the medicine shop of the Soul", which perhaps conveys rather more of a strictly commercial interpretation than was intended by the original users of the phrase.

None of these libraries was in any sense "public", nor were there any such libraries in Athens or other centres of Greek learning until the spread of Roman power throughout the Mediterranean world. The first public library known to history was established in Rome in the 1st century A.D. Other foundations followed and some attained considerable importance as is attested by the legend that even after many of the books in one famous library had been destroyed by an early Christian emperor on the grounds of heathen authorship, there were still sufficient remaining to enable the Caliph Omar in 638 A.D. to stoke the fires for 4,000 baths for six months.

The development of libraries came to a sudden end with the collapse of the Roman Empire. Apart from the efforts made to keep learning alive in the monasteries through the Middle Ages, there is little to record for over a thousand years until in the 15th and 16th centuries three events, the revival of learning known as the Renaissance, the invention of printing and the dissolution of the monasteries, brought about an entirely new situation. The first led to a great increase in the demand for books, the second made it possible by mechanical means to satisfy that demand and the third, while it scattered almost irretrievably the painfully garnered treasures of the Dark Ages, gave a tremendous impetus to the establishment and development of secular libraries. It was now that men first conceived the duty of preserving the literary monuments of the Nation's history, religion, thought and art in the libraries of the Universities and their Colleges, in the learned societies and in the private collections of noblemen and scholars. It was not, however, until the 18th century that the library became a recognised organ and repository of culture. It became a mark of respectability to collect books and a multitude of country-house libraries came into existence from which, incidentally, many treasures have, in the last 50 years, emerged into the light of the sale room.

Up to the end of the 18th century it would be true enough to say that only the clergy and scholars had access to libraries. The great public and semi-public libraries were, however, beginning to take shape. In 1759 the British Museum was opened with a magnificent collection of books and manuscripts, partly bequeathed by Sir Hans Sloane who was born in Killyleagh, in County Down, and partly purchased from the proceeds of a lottery. In the 19th century, the explosive effects of the Industrial Revolution produced a great increase in the population and a rise in the standard of living. A new urbanized Middle Class and a class of skilled artisans were created. Both classes demanded facilities for the obtaining of the knowledge which is to be found in books, and more books were produced to satisfy this demand. New types of libraries were also created to house the books; for the middle class the Subscription Library, of which you have an excellent example in the Linenhall Library founded in 1788, and for the working class the libraries of the Mechanics Institutes, many of which were the forerunners of the public libraries of to-day. When Carlyle wrote in 1841 that

"the true University of these days is a collection of books", he could hardly have envisaged the subsequent developments of a movement which was then in a germinal stage, but he was expressing what many educators realise to be a fundamental truth. Together with my fellow librarians, I am constantly preaching that one of the lessons of permanent value to be learned from a course of study at a University is the knowledge of how to make full use of a large general library. It is not so important to have at one's fingertips all the facts about a particular subject as to know how to set about finding the information you want on any subject, how to assess it once found and how to relate it to the knowledge you already have. This lesson can best be learned by constant practice and experiment in a library fully equipped with reference books, bibliographies, books and periodicals in all subjects and at all academic levels.

But I am running ahead of my theme. In 1849 it was estimated that only 53 books were available for every hundred of the population of the British Isles and it was not until the following year that the first Public Library Act was passed empowering Town Councils to provide libraries to which the public should be admitted without charge and to levy a halfpenny rate (later increased to one penny) for the purpose. It was not until 1919 in England and Wales and 1946 in Northern Ireland that this hampering rate limitation was removed. In the meantime, with the passing of the Education Act in 1870 and the opening of the campaign which is still being fought to eliminate illiteracy, a vast new reading public had been created. These potential library users were by no means confined to the urban population and during the 1914-1918 war a move was made to extend library provision to rural areas. After thirty years of development the County Library Service is so well established as an adjunct to the Urban Service that we are now in sight of the goal of offering the same facilities for recreational and educational reading to every member of the community, whatever their financial resources or place of residence.

I have tried to sketch very briefly the historical development of the library service which we enjoy to-day, because it is impossible to assess its present nature and significance without some knowledge of the background. It is particularly important to realise that despite the long history of libraries, it is only in the last 200 years that they have become powerful factors in the organisation of science and scholarship. With a few notable exceptions such public libraries as existed were small, badly-housed, open for short and erratic periods and incompletely and inaccurately catalogued. There are still libraries which merit this description, but they are a minority and merely serve to emphasise the outstanding achievements of those who can justly claim to be aiming at the objective set for himself by the most famous of the British Museum's Librarians, "I want a poor student to have the same means of indulging his learned curiosity, of following his rational pursuits, of consulting the same authorities, of fathoming the most intricate enquiry as the richest man in the Kingdom".

The Public Library is nowadays regarded by a large proportion of the population of this country as the natural place of resort for information, instruction and recreational reading. It is generally recognised that all progress depends on knowledge and that a large part of knowledge comes from books. The ideal of the Public Library has been summed up as "self-development in an atmosphere of freedom", and the whole organisation of the National Library Service is directed towards that end. At the head stands the British Museum which, despite the losses sustained during the war, to-day contains over three million books. It is by no means the largest in the world, as the Library of Congress in Washington and at least one Russian library contain considerably more volumes,

but it is renowned throughout the world for its services in the cause of scholarship. Under the Copyright Acts a copy of every book published in the United Kingdom must be deposited in the Museum and as there is also a substantial grant for the purchase of foreign books, and munificent gifts are received from time to time, the Library can be said to be faithfully pursuing the policy laid down by John Durie, the Royal Librarian in 1650, namely, "to complete the publick stock of learning which is in books and manuscripts, to increas it and to propound it to others in the waie which may be most helpful unto all".

There are five other Copyright libraries in the British Isles: the Bodleian, Cambridge University Library, the National Libraries of Scotland and Wales and Trinity College, Dublin. Northern Ireland is the only part of the United Kingdom which derives no benefit from the Copyright Acts and it is undoubtedly a considerable obstacle to learning in the Six Counties that we have no library of comparable scope with those I have mentioned. This is just one of the deficiencies which we hope will be made good in the reorganisation of the Northern Ireland Library Service which is now under discussion with the Government departments concerned.

In addition to the National Libraries, there are several very fine collections of books attached to Government departments some of which, like the Patent Office and the Science Library, are open for use by qualified students. Each of the provincial Universities, including Queen's, has a large and growing Library, primarily for the use of their own students and staff who are following prescribed courses of study, or are engaged in research. There are, too, the proprietary libraries such as the London Library and the Linenhall and the libraries of the Learned Societies, of which we may take the Royal Society of London and the Belfast Natural History and Philosophical Society as examples, different in size but with similar aims and objects. A recent development is the growth of a most complex and heterogeneous group of special libraries in connection with particular aspects of industry or commerce, of which the Linen Research Institute at Lambeg is the best local example. School libraries, both secondary and primary, are just beginning to be recognised as important links in the chain. Finally, there is the elaborate network of public libraries, both urban and rural, covering nearly every city, urban district and county in the United Kingdom.

There is, in fact, no lack of books or of libraries, but they are perhaps less well organised than they should be in order to ensure that the fullest possible use is made of the available resources. Despite the progress that has been made towards co-ordination of the existing services through the National Central Library of London, there is still a great deal to be done before we can be satisfied that we are meeting the legitimate demands of our readers for the knowledge and power, the solace and refreshment to be derived from books. Our proposals for Northern Ireland envisage a unified service which would give every reader in town and country alike, a reasonable supply of recreational reading and unlimited access to the literature of science, technology and the arts, without which our highly developed, but very precarious, civilization would be threatened with extinction.

Perhaps I am devoting too much of my time to the problems of organisation; what we are really concerned with is the use to be made of these institutions, with the end rather than the means. When, however, we come to analyse the nature of these ends we are faced with an immediate problem of reconciling two apparently irreconcilable conceptions of the true and proper function of libraries. The old view was that a library was a museum or storehouse and that the librarian was merely a superior type of warehouseman, a neutral agent whose job it was

to provide the book asked for by a reader and see that it was returned. The emphasis was on conservation rather than use and librarians of this school of thought have been known to resent the intrusion of readers into their jealously-guarded preserves with the same indignation as the cathedral verger who complained of "people praying about all over the place".

The alternative view has been well summarized by Archibald McLeish, the American poet who in his survey of his five-year term as Librarian of Congress said, "A Library is a group of human beings who accept a responsibility to make any part of the printed record available to society, but do not let their responsibility end with the mechanical delivery of the book". The same idea is conveyed in the conception of the Library as a laboratory or intellectual workshop, the powerhouse rather than the storehouse, from which radiates a constant stream of ideas newly generated from the stored wisdom of the past. The problem of administering these new libraries calls for special qualities in the librarian who, according to one definition, needs to be a man of universal knowledge, unlimited sympathies and inexhaustible patience and tact. It is certainly true that the successful librarian must combine in some degree the qualities of scholar, administrator and practical psychologist. He must have knowledge verging on omniscience, not of all the facts relating to all subjects, but of all possible sources of information. The librarian is more than a clerk or technician and while he is primarily the servant of the scholar, he must also be something of a scholar and a student himself. Ralph Waldo Emerson was being less than fair to the honourable and onerous profession of librarianship when he spoke of "the meek young men who grow up in libraries". In the Report to which I have already referred, McLeish goes on to say that "there is an affirmative and urgent obligation on a librarian to interpret between the books and those who need them". This has been expressed even more succinctly by a famous European Librarian, Dr. Munthe of the University Library of Oslo, who declared that the librarian must be a catalyst between book and reader. Catalysis is defined as the effect produced by a substance that, without undergoing change itself, aids a chemical change in other bodies. This may seem a somewhat forbidding process, but my scientific friends assure me that it is an essential feature of a catalyst that it must neither exhaust itself nor be poisoned in the process.

The resolution of the conflict between these diametrically opposed points of view, the old and the new, the negative and the positive, the static and the dynamic, is less difficult than might be expected. Every library, if it is to carry out its duties conscientiously and efficiently, must partake of both functions. It is the primary duty of libraries to preserve the records of past civilizations as well as our own, to accumulate books which may one day be used by readers as yet unborn, and by conservation to give to Society a sense of oneness with the past and some conception of the shape of things to come. In addition to this static warehousing function which would limit the librarian's responsibility to the reading public to providing books in response to an expressed demand, there is the positive duty of stimulating and fostering the habit of reading by organising and making as widely available as possible the knowledge which is to be found in books. Libraries can make a vital contribution to the efficiency and happiness of each individual man, woman and child in the community. The Library Service must aim at eliminating ignorance, which is a disease of the mind, with the same determination and drive as the Health Services aim at eliminating diseases of the body.

In the last 50 years the emphasis has changed from books to readers, from conservation to use. Scientists have long been aware of the importance of libraries

as tools of research. As knowledge propagates itself by repeated fission into increasingly recondite specialisms, each new nucleus of research demands its own bibliographical apparatus provided by its own library. These libraries, by the compilation of bibliographies, abstracts and reading lists, act as clearing houses of information about scientific and industrial problems. Only in this way can we train the experts demanded by our complicated Society. It is no exaggeration to say that the activities of "back-room boys" in the war were only possible because of the existence of an organised bibliographical service. At a recent Conference of ASLIB Professor Bernal, one of the most distinguished of the war-time "Boffins", pointed out that "the complexity of science has grown to such a degree that the library and information service has become a key to conscious progress along the whole front of advancing knowledge".

The task of keeping bibliographical track of new advances in knowledge demands alertness and readiness to make use of the latest technical devices. For 450 years after the invention of printing there was no striking innovation in the mechanics of librarianship, but in the last 50 years there has been something of a revolution. Photographic reproduction by way of photostats and, more recently, by microfilm has for some purposes already replaced the printed book or pamphlet. The latest research indicates that in the not too distant future we may be able to dispense with libraries as we now know them. In place of endless shelves of unwieldy, dust-laden volumes, we shall have compact filing cabinets containing millions of 5" x 3" micro-cards. Each card will contain the familiar catalogue entry together with 80 to 100 pages of the book referred to, reproduced by refinements of micro-photography which are already well within the scope of scientific ingenuity. All that will be required to make the material available to the reader will be a microfilm projector which magnifies the image back to normal page size. This project is by no means as fanciful as it sounds. Ordinary microfilm, whereby a large folio page may be reduced to the dimensions of a single 35 mm. film frame, is already in widespread use in libraries. There is also a development of some interest in use in hospitals, which enables the magnified image to be projected on to the ceiling so that a helpless invalid who could not otherwise hold a book may read in comfort while lying flat on his back. Perhaps the library of the future will consist merely of a range of filing cabinets to hold the micro-cards, with a large number of cubicles, each provided with a comfortable divan on which the reader will recline while his book is projected on to the ceiling and a dictaphone into which he will dictate his notes. If he grows tired of serious work and wants relaxation, he will turn from the microfilm projector to the sound strip apparatus and switch on the dulcet tones of the talking book announcer who will soothe him with a recital of prose or verse.

Many of you will no doubt recoil with distaste from this vision of a brave new world and I, personally, would agree with those who would regret the passing of the printed book as we know it. It will, however, be many years before any development of this kind takes place and it is most unlikely that the revolution will be complete, except possibly in certain highly specialised technological libraries. The more general libraries will continue for many years to come to develop along more orthodox lines and I would like now to consider the contribution which the ordinary public library has to make to the well-being of the community as a whole. It might be argued that their sole function is to supply the type of reading matter which provides monetary entertainment, relaxation, or distraction, but in my view their significance is far greater than this. I have already referred to the library's prime function of inculcating the reading habit. They have, in fact, succeeded so well in this purpose that there is now an almost unlimited

market for printed matter of all kinds. It has even been suggested that by analogy with the Stone, Bronze and Iron Ages, our own period will be known to posterity as the Age of Paper. Despite the counter-attractions of cinema and radio, there has been a tremendous increase in the amount of matter which pours from the printing presses, so that the poor librarian sometimes longs for a periodical moratorium on publishing to enable him to keep pace with the flood.

Reading is nowadays one of the few pleasures which are neither taxed nor rationed and there are no regulations to forbid over-indulgence. Some librarians seem to imagine that the resultant gluttony is a cause for satisfaction and by applying purely quantitative tests they imply that reading is in itself a virtue. A good deal of this reading is, however, merely inert and credulous absorption of printed matter and is to be condemned as one of the abuses of libraries. Books are used as the media of wishful dreaming, relieving the tedium of empty lives with vapid sentimentality or tickling jaded palates with the crudest sensationalism. The type of book which is most in demand in the average public library is that which provides escape from reality. Popular reading has become the new "opium of the people"—literally and metaphorically it is the sovereign soporific. Whether as a cure for insomnia or as a cure for the "blues", recourse is had to the current best-seller whose crudities and inanities seem to have a curiously soothing effect upon jangled and distraught nerves. Popular newspapers and cheap magazines vie with tobacco and aspirin as sedatives and narcotics, while the detective thriller and the lush romance provide a cheap and ostensibly innocent method of auto-intoxication. It is estimated that not more than 15 per cent. of the population make any use of the public libraries and very few of these readers stray beyond the well-thumbed rows of popular fiction to the almost untrodden territory of what is described in a forbiddingly negative fashion as non-fiction.

I agree that this is a devastating criticism of certain aspects of the Public Library Service. If this were the whole of the story the prospect would be indeed a gloomy one. Fortunately, there is another aspect of the work of the public libraries which is of increasing importance in that they have a great part to play in the task of producing a cultivated democratic Society. They are in themselves the most important agencies of adult education and, in particular, of education for citizenship. The price of liberty is eternal vigilance and vigilance depends as much on mental as on physical agility. The problem can be reduced to very simple terms: how to train and keep alert a sufficient number of keen minds, capable of analysis and criticism and prepared to take action on the basis of considered judgment. If we are to avoid the feeling of false security engendered by the type of anaesthetic purveyed by the popular press and the cheap magazine we must submit ourselves to the kind of training provided by constant association with the greatest minds of our own and other ages and peoples through the books they have written and the views they have propounded. Democracy is a form of politely implying a community of individuals who think, read and discuss and whose ends are directed by a balance of judgment. Such a Society cannot exist without free access to good books. Libraries have aptly been called the arsenals of democracy, a description which became singularly appropriate in occupied Europe during the war. Both the Bibliothèque Nationale in Paris and the National Library of Norway in Oslo became centres of resistance activity. In both cases resistance newspapers were edited and even printed in remote corners of the extensive book stacks and a fair amount of organisation of the resistance movement was carried out from these headquarters. Dr. Munthe, the Librarian of Oslo, tells how at one critical period of the war the German army authorities in Norway ordered a troop of soldiers to be quartered in the

Library. Munthe complained to the officer in charge and pointed out that his men would be very uncomfortable in the narrow aisles of the book stack. The officer replied that he would put plenty of straw down for them and that his men would benefit intellectually from sleeping in such close proximity to so many books. As a last despairing effort Dr. Munthe pointed out that, as in most libraries, smoking was forbidden by the Regulations. This changed the situation entirely, as the German officer, with a proper Teutonic regard for what is verboten, realised that he could not prevent his men from smoking and forthwith cancelled the billeting notice.

It may be that I have over-emphasised the use of libraries as agencies of adult education. Before I close I would like to readjust the balance by saying just a few words about the recreative aspects of reading. Many of us are somewhat priggish about reading for recreation and are inclined to comment adversely on the provision of fiction as a Public Service on a par with drains, police and other amenities, but it must not be forgotten that the novel has nowadays taken the place of the sermon, the essay and the play as the channel through which fresh ideas about human relationships are put abroad. It was Dr. Johnson who asked, "What should books teach but the art of living?", and it is more true now than ever it was that libraries can make a vital contribution to the proper use of leisure. Milton described a good book as the "precious life blood of a master spirit" and Descartes said that "reading a good book is like having conversation with the person who wrote it, a conversation in which the author declares to you only his noblest and loftiest thoughts".

I have, I am afraid, come to an end of my time without anything more than a cursory reference to what is perhaps the most important use of all to which libraries can be put. I mean the part they can play as a integral part of the educational process in the form of school libraries. This would be a subject for an entire lecture in itself, but I must refer, however briefly, to the revolution in teaching methods which is taking place in those schools which make full use of library resources. The school library is the threshold to the vast resources of the library system of the country as a whole. It is there that tastes are first developed and skills first taught which are indispensable to a full life as an individual and as a responsible citizen. The school library has a wonderful opportunity for creating a love of reading and a lifelong habit of turning to books for recreation and instruction.

In conclusion, the points I want to make are that books are not a luxury but a necessity of our civilization and that libraries are essential institutions for the preservation and dissemination of knowledge. Libraries, by creating and encouraging intellectual curiosity, purposeful activity and the exercise of a critical judgment, have a vital contribution to make to the happiness, efficiency and freedom of each one of us. In the words of the Library Association which is at present engaged upon an attempt to establish the library service upon a new footing:

"The service can, if made fully accessible, pervade and enrich all aspects of living. It can, again if made fully accessible, reach people of all age groups, occupations, and circumstances, helping them to become balanced, integrated, and satisfied individuals, useful and consciously valuable and responsible citizens . . . By the facilities it affords for wide and unfettered reading, the public library enables every man not only to enlarge his mind with the refined pleasures of great literature, but in particular (at present a vital need), to secure that understanding of social and economic forces and conditions without which there can be no true realisation of the democratic way of life".

8th April, 1948.

ARTHUR DEANE, M.R.I.A., President, in the Chair.

SOME LESSONS FROM EDUCATIONAL AND PSYCHOLOGICAL WORK IN THE SERVICES DURING THE WAR.

PROF. S. D. NISBET, M.A.

I.

It is a disquieting but admitted fact that, in time of war, when communities are organized for mutual destruction, valuable and rapid progress is made along certain lines which might never have been made at all, or at least would have taken a much longer time, in a more peaceful era. Everyone knows that this is the case with scientific research in things physical and material; it is perhaps less obvious, but equally true, in the case of research into certain aspects of human relationship. In other words, psychological and sociological as well as purely physical problems have been illuminated in the course of the war.

In this paper I shall make no attempt to list the most important of these psychological and sociological advances, but shall merely select for discussion four techniques which, though they did not originate in the Services, were extensively developed there during the war and which, different though they were, all have, indirectly, a contribution to make to the solution of an extremely difficult problem—that of finding satisfactory relationships between the individual and the community in a modern democratic society.

II.

The first of these techniques I have chosen is the use of mechanical aids to teaching. Both in regular service training, general as well as technical, and in the more narrowly defined “educational” work of the education officers, films, film-strips, charts, models, records, and the like were used on a very large scale indeed. Time was short, and recruits had to acquire basic knowledge and skills in the most economical way. The services were quick to see that mechanical aids were of the greatest value not only in speeding up the learning process but in establishing it on a sounder basis: that, indeed, the added realism afforded by such aids was actually *indispensable* if the less academically minded men were to learn anything at all. In addition to their usefulness in direct teaching, these mechanical aids were found invaluable for “orientation” purposes: thus the “background” film and that well-known feature of Service units in the later years of the war, the “information room”, were developed, and as a result the ordinary soldier, when conditions were such as to permit him to take advantage of these facilities, was enabled to obtain a much better general picture of the course of the war, of the organization of his own Service, and of post-war problems which would confront the people of this country when he resumed his place in civilian society.

I do not intend to describe these various types of mechanical aid: they are sufficiently well known, and, in any case, as I said, most of them were quite widely used in civilian institutions before the war. All I wish to emphasise is that their use in the Services transformed them, in a few years, from luxuries, unassimilated by our educational system, into eminently useful everyday elements in all teaching institutions, and also showed clearly how they could be employed to develop a more intelligent and satisfactory relationship between the individual and the community of which he formed a part. At present we find that films, film-strips, radio, "isotype" and other charts, and exhibition rooms are rapidly being introduced into our civilian schools, not only for the work of straightforward teaching, but also to provide a background of such information about the outside world as is necessary if the pupil is to be a citizen as well as an individual. To take a single example, the Corporation of Glasgow has recently made a series of films illustrating the various municipal services—administration, health, cleansing, water, gas, electricity, transport, etc.—which are to be exhibited as part of the regular work in every school.

Why is all this so important? The answer is obvious if we consider the essential function of the school. In a primitive community no schools are required because the young person can pick up all he need know by incidental observation and participation. When society becomes more complex, schools are necessary to present to the pupil, in a simplified and condensed way, what is either too remote in space or time or too complicated for him to acquaint himself with at first hand. The school must "mirror the community": its function is merely to do for the children what real living in the community would do for them, but to do it in a very much shorter time and in a more efficient manner. If the school conceives its function to be otherwise, and concentrates, for instance, on the study of traditional and bookish subjects, the results are fatal for democracy; for the pupil, though he may achieve a degree of personal self-realization, does not understand, in an intimate enough way, the character of the community in which he lives and his responsibilities to that community. Much of the frustration felt by people in a modern community is due not so much to real thwarting as to lack of *knowledge* of the ways in which *co-operation* is possible in a complex and highly civilized society.

What can we substitute, therefore, for direct first-hand experience of the life of the community? The old answer was: books. Educational work in the services has proved beyond doubt what has in fact been realized by shrewd educationists for centuries—that only a small proportion of the population is capable of learning *effectively* from books alone. The remainder, though able perhaps to reproduce verbally what they read, are quite unable to carry over their knowledge into practice, and so their knowledge is not effective. For them our schools must have pictures, films, models, information rooms, radio, gramophones, and all the rest: otherwise such people will remain, in effect, ignorant, and consequently, in a democratic state, dangerous.

III.

The second technique I have chosen to mention is that of the discussion group. We know how the Army Bureau of Current Affairs, and similar organizations in the other Services, developed regular discussion groups both in the early training of the recruit and, as far as possible, in his subsequent Service life. It was realized that one of the surest ways of enlisting the co-operation of the men is to let them discuss freely topics which concern them, and encourage them to go on and discuss topics which ought to concern them. The intention behind these

arrangements was very sound, and in some Service units the discussion groups were a great success; though it must be confessed that in others, owing to the unco-operative attitude of the officers directly in charge of groups of men, they made little headway.

Once again, there was nothing new in this technique. Far from it: it is about two thousand years old. But the emphasis laid on discussion groups in the Services has had its influence. In industry we find that the more enlightened firms are arranging meetings at which groups of workers and managers can discuss, informally, problems related to their work and responsibilities; and in all our adult education activities to-day we find more and more demand for informal (but guided) discussions, in place of lectures. In my own Department of the University I am gradually reducing the amount of formal lecturing and substituting for it a species of "directed discussion".

It will be seen that we are here considering a special case of the more general question we raised earlier—the question of educating the non-academically minded members of the population. Just as comparatively few learn effectively from books, so do few learn effectively from lectures. For people of only average intelligence or lower, exposition *must* be accompanied by discussion, and the greater the proportion of discussion to exposition, the nearer the number in each discussion group to the optimum number (which is about eight), and the less formal the method of approach (provided of course the discussion is *guided* by a skilful leader), the more real learning takes place—i.e., the more likely it is that what is apprehended will be fully assimilated and translated into action. Even for highly intelligent adults it is a question whether discussion methods are not in every way superior to that outworn mediaeval institution, the academic lecture.

The main difficulty about discussion techniques is that they call for very much greater skill and nimbleness of wit on the part of the teacher, or leader, than do the traditional techniques of more formal teaching and lecturing. Almost anyone can give a lecture, but able discussion leaders are rare birds. Training in these methods can do much, but only if it is superimposed on a personality far above the average in native endowment. The Services have shown clearly how difficult these discussion methods are to master, and have given a great stimulus to the specific study of them. To-day all teachers of adults, and many employers of adults, are aware of the benefits that accrue from any attempt to develop these essentially democratic techniques.

It will be remembered that we are considering these lessons from the Services in the light of their relevance to the problem of the relationship of the individual to the community. What could possibly be more important in this respect than the development of discussion methods, methods which, in cases where they were successfully applied during the war, helped to change a crowd of suspicious, uninformed, and querulous individuals into a co-operative team? Surely we can ill afford to neglect such techniques in civilian enterprises to-day.

IV.

So far we have been concerned with lessons from the educational work in the Services. We take our third example of useful techniques from the work of the psychological and "personnel" authorities in the Services—the use of psychological tests of ability and aptitude in selecting men for jobs, and jobs for men. Research in this field of vocational guidance and selection often made more progress in a few months during the war than had been possible in a decade

previously. Not only was the need for good and rapid methods of selection a pressing one, but the "material" was very favourable to research—millions of men all of whose movements were controlled, so that "follow-up" studies could be made without the usual difficulties of similar investigations in civil life.

By the end of the war hundreds of thousands of men were being selected by the aid of psychological tests for various trades in the Army, various flying duties in the R.A.F., and the like. In the American Army the scale of this selection work was truly gigantic: literally millions of men were put through the selection machine and allocated to jobs on the results.

One of the most valuable features of this machinery was that it could be made "self-evaluating"; statistics could be (and were) kept to determine whether the new methods were in fact placing fewer square pegs in round holes than the older less scientific methods of selection. It was found every time that the newer procedures produced far fewer misfits, and so far less unhappiness and bad work.

We need only recall for a moment a central idea in Plato's *Republic* to realize how all this fits in with our theme—the relation between individual and community. Harmony is possible in a community only when each person is engaged on the work for which he is best suited: occupational misfits are a menace not only to the prosperity of a nation, but, if it is a democratic nation, also to its whole future welfare, for they form a nucleus of malcontents around which disruptive factions may build themselves up. Provided we are on our guard against any tendency to coercion or compulsion, we could go far towards building up a happier and more efficient community if we provided facilities for vocational guidance and selection on even a fraction of the scale of those developed in the U.S. and British armed forces during the war.

V.

The last of my lessons from the Services again concerns techniques of selection, but this time selection for high-grade positions—the selection of officers, managers, directors, administrators, and the like. The "country-house" selection procedure for Army officers during the war is so well-known now (if not in its original form, at least in its adapted form as the Civil Service selection procedure at Stoke d'Abernon) that it need not be described here. It is not so generally known that in industry, too, several progressive firms (under the guidance of the National Institute of Industrial Psychology) have recently adopted similar techniques in the selection of candidates for posts at the managerial level. Perhaps it might be of some interest if I gave a short account of the lines usually followed by these selection procedures in industry. A group of candidates (say, half a dozen) undergo, as a group (instead of each having to face the whole interviewing board as is the conventional practice), an extended "interview" lasting up to two days, meals and accommodation being provided. In the course of the two days, (i) each candidate has a personal interview with a psychologist, an intelligence test, and occasionally a word-reaction test, and (ii) the whole group takes part in two discussions, at each of which the group is given some problem, often relevant to the work of the firm, to discuss. (In addition, of course, the usual information is obtained about health, previous history, character, qualifications, etc.) From his behaviour in these personal and social situations—they are made as "natural", friendly, and unstrained as possible under the circumstances—the board (usually two senior members of the firm plus the psychologist) get so revealing a picture of the candidate that as often as not there is no doubt in

their minds, by the end of the time, as to the best choice. Equally important, and very striking, is the fact that, when the candidates have been asked at the end for their frank opinions of the process they have just been through, "on every occasion the reaction of the candidates has been favourable, and no serious criticisms or complaints of unfairness have been voiced." A good account of these methods in industry will be found in an article (from which the quotation in the last sentence is taken) by J. M. Fraser in *Occupational Psychology*, October, 1947.

To return to our central idea: though we are here dealing with only a small section of the community—the top "layer"—it is a vitally important section, and if we are successfully moving towards procedures which tend to pick out, with fair accuracy, the best people for the highest posts in administration and industry, and at the same time leave the rest feeling they have had a square deal even though they were not chosen, surely a big step forward has been taken in removing some of the biggest grains of sand from the community machinery—the unsuitable people in high places, and the disgruntled "losers".

We hear from time to time the ridiculous assertion that procedures of this sort are "inhuman". In fact, of course, they have been developed as a revolt against the inhumanity as well as the inefficiency of the traditional modes of selection, in which a candidate's whole future is settled by his performance at such artificial and "inhuman" situations as a written examination or a formal interview at which he sits on one side of a large table while a benchful of inquisitors fires questions at him from the other. By getting rid of the artificiality of these situations, improving the atmosphere, and giving the candidates more time and opportunity to show their qualities, selection has been made much more "human" than anything existing previously.

VI.

I have suggested how these lessons from the Services might contribute something to the consolidation of modern peace-time society. I need hardly say that we must always treat "lessons from the Services" with suspicion since the *raison d'être* of a fighting service is essentially different from that of a peaceful civilian community. Some of the methods I have described are behaviouristic and utilitarian in character, and at first sight may seem out of accord with our more congenial individualistic and spiritual conceptions of humanity. I think, however, though I approve of this caution, that we may accept the four techniques I have discussed without fear, and it would give me great pleasure if I saw them being used with as much energy in building up a co-operative world as they were in organized destruction.

127th SESSION.

ANNUAL MEETING.

The 127th Annual Meeting was held in the Society's Rooms, Old Museum Buildings, on Thursday, 4th November, 1948, at 3.30 p.m.

The President, Mr. Arthur Deane, occupied the Chair; and among those present were Dr. S. W. Allworthy, M.A., M.R.I.A., Mr. F. J. Cole, Mr. R. S. Lepper, M.A., Mr. W. Erskine Linton, F.R.G.S. (Hon. Librarian), Mr. A. G. Pomeroy, M.A., Capt. E. J. L. Turner, M.C., Prof. W. G. Wilson, D.Sc., M.D., Mr. J. Crawford Shaw, F.C.A. (Hon. Treasurer) and Mr. James R. Young, F.R.I.B.A.

APOLOGIES. The Hon. Secretary read apologies received from Professor Sinclair, Mr. J. C. Taylor and Mr. J. Heslop Harrison.

NOTICE OF MEETING. The Notice convening the Meeting was read by the Hon. Secretary.

ANNUAL REPORT. It was agreed that the Annual Report which had been circulated to the Shareholders and Members should be taken as read.

THE ANNUAL REPORT OF THE COUNCIL FOR THE

127th SESSION, 1947-48.

The 127th Session of the Belfast Natural History and Philosophical Society ended on the 31st October, 1948.

SHAREHOLDERS AND MEMBERS. The Shareholders and Members now number 154, an increase of two.

NEW MEMBERS. Eight new Members were elected during the Session:—Colonel J. G. Cunningham, O.B.E., D.L., J. J. Graneek, M.A., J. Heslop Harrison, B.Sc., Cahir Healy, M.P., Harford Montgomery Hyde, M.A., D.Litt., M.R.I.A., A. C. Montgomery, Professor Stanley D. Nisbet, M.A., Rev. R. Dixon Patterson, M.A.

RESIGNATIONS. Six Resignations were received with regret:—Mrs. L. M. Bell, Professor K. G. Emelus, M.A., Professor E. Estyn Evans, M.A., D.Sc., Miss D. Gilliland, Robert A. Mitchell, W. Workman.

LECTURES. Six Lectures were given during the Session, there being a good attendance. Each lecture was followed by interesting discussions.

4th November, 1947: "Art in Irish Churchyards," Mrs. A. K. Leask, M.A., LL.B.

9th December, 1947: "History of the Violin," E. A. A. Stoneley, Mus.Doc. (Edin.).

15th January, 1948: "The Cathedral of Chartres," Mlle. Francoise Henry.

12th February, 1948: "The Uses of Libraries," J. J. Graneek, M.A.

11th March, 1948: "Pollination and Fertilization," Arthur Deane, F.R.S.E., M.R.I.A.

8th April, 1948: "Some Lessons from Psychological and Educational Work in the Services during the War," Professor Stanley D. Nisbet, M.A.

EXCHANGES. Mr. A. H. George, who looks after this important section of the work, reports that:—

The ordinary work of acknowledging the exchange publications and dividing between the Library of the Museum and Art Gallery and the Library of the Queen's University, has been carried out as usual during the past year. The work of making photostat copies of the Irish Manuscripts by the National Library, Dublin, from MSS. in the Society's possession has now been completed and all the Manuscripts have been returned to the Belfast Museum and Art Gallery. The work of sending out the Centenary Volumes has not yet been completed but will be before the end of 1948.

Your Council acknowledges with appreciation and thanks the admirable way in which Mr. George has looked after the Exchanges.

LIBRARY. The Hon. Librarian, W. E. Linton, F.R.G.S., has co-operated with J. J. Graneek, M.A., Librarian, Queen's University, and has arranged for the Journals of corresponding Societies to be addressed to The Hon. Librarian, Belfast Natural History and Philosophical Society, c/o The Queen's University Library, Belfast, Northern Ireland.

REPORT ON THE PROPERTY. Your Managing Agents, Messrs. A. H. Davison & Dickey, report as follows on the Society's building, No. 7 College Square North:—

No vacancies have occurred during the year, and the long term lettings remain as before, namely, The Royal Society of Ulster Architects, Ulster Academy of Arts, Workers' Educational Association and The Ulster Hospital Libraries Association.

The lettings to the Belfast Naturalists' Field Club amount to £14 10s. 0d., and to the Christadelphian Ecclesia to £95, while the occasional nightly lettings show an increase on last year, being £96 1s. 6d. as compared with £77 17s. 6d.

We trust that members will continue to encourage nightly lettings to suitable societies in order that the income from this source may show an improvement.

COUNCIL MEETINGS. Six Council Meetings were held during the Session. In September, 1948, Em. Professor W. B. Morton, M.A., D.Sc., M.R.I.A., for health reasons tendered his resignation, and the following resolution was moved by the President, seconded by Mr. F. J. Cole, and unanimously resolved: "That the Members of Council assembled, having heard of the retirement from the Council of Em. Professor W. B. Morton, M.A., D.Sc., M.R.I.A., desire to place on record our deep appreciation of his outstanding services to the Society, not only as a Member of Council for so long a period but as our President; and also for the interesting and instructive Lectures which he delivered before the Society from time to time to overflowing audiences. We, as Members, will miss his friendly and cheerful manner at our Meetings, and we sincerely hope that our brilliant scientific colleague will be spared to us to enjoy his friendship for many years to come."

CONSTITUTION. Five Members of Council now retire by rotation:—Professor T. Thomson Flynn, D.Sc., M.R.I.A., R. H. Hunter, M.D., Ph.D., M.R.I.A., R. S. Lepper, M.A., LL.M., F.R.Hist.S., Em. Professor W. B. Morton, M.A., D.Sc., M.R.I.A., James R. Young, F.R.I.B.A. The meeting will be called upon to fill the vacancies

ARCHAEOLOGICAL SECTION. It has been decided by the Council that any grants given from the funds of this Society for Archaeological Excavation or for

other purposes of Research, or Fees paid for original papers, should be given only on the distinct understanding that full and detailed results will be submitted with a view to publication in this Society's Proceedings.

REPRESENTATION. The Society's Representatives during the Session on the following Organisations were as listed below:—

Ancient Monuments Advisory Council—Professor E. Estlyn Evans, M.A., D.Sc.

Libraries, Museums and Art Committee of the Belfast Corporation—Dr. S. W. Allworthy, M.A., M.D., M.R.I.A.

National Trust—Em. Professor Gregg Wilson, M.A., Ph.D., D.Sc., M.R.I.A.

ACCOMMODATION. Your Council have discussed with Mr. R. C. Davidson, the Hon. Treasurer of the Belfast Naturalists' Field Club, the terms on which the rooms are to be let to the Field Club with a view to a permanent and amicable arrangement for the benefit of both Societies.

HONORARY TREASURER'S STATEMENT. The total receipts for the year amounted to £515 15s. 6d., but the expenditure was £528 17s. 6d., thus creating a deficiency of £13 2s. 0d. This reduced the funds in bank from £21 2s. 5d. at the beginning of the year to £8 0s. 5d. at the close.

The main item of expenditure which calls for comment is the cost of printing the Proceedings and Reports of the Society for the 125th Session which, as will be seen from the accounts, amounted to (a) £124 18s. 10d., and represents an increase of £55 over the previous year.

As the value of property generally has considerably increased, your Council deemed it prudent to take out additional cover against the risk of fire. This made an additional inroad on the funds of £20.

It is to be hoped that the day is far distant when any part of the holdings of £640 in investments held by the Society will have to be realised to meet the increasing expenditure.

(By Order of Council),

JAMES R. YOUNG, Honorary Secretary.

21st October, 1948.

ADOPTION OF REPORTS. In moving the adoption of the Annual Report and Financial Statement, the President referred to the resignation from the Council of Em. Professor W. B. Morton, M.A., D.Sc., M.R.I.A.; and gave a vivid description of the interest taken by the Shareholders and Members when Professor Morton lectured, the Hall being filled to capacity. This did not occur once but at all the lectures given by Professor Morton. His absence in the future from the Council and meetings of the Society would be most keenly felt.

As to the Exchanges—there were many received which were of great interest and value, and he thought that their distribution between Queen's University and the City Museum was a good one, as they were more likely to be used than if stored in the Society's building. An important step forward was the arrangement made by our Hon. Librarian with Mr. J. J. Graneek, Librarian of Queen's University, for the reception of the Exchanges. He hoped the new arrangement would bring about a quicker distribution.

(a) This amount also includes £3 10s. 0d. for addressing 181 Proceedings and postage at 4d.—Ed.

One regretted the resignation of some valued Members from the Society but it was a good sign that the numbers on the roll were increasing, which was encouraging.

An interesting and varied Lecture Programme had been prepared for the 128th Session, which he hoped would be well attended and appreciated.

In conclusion the President thanked Mr. Young, Hon. Secretary, Mr. Shaw and Mr. Linton for the assistance he had received from them during the year; and for the active interest they took in the Society's work.

Professor W. G. Wilson in seconding said it had given him great pleasure in perusing the Annual Report and to learn that the old Society was still prospering.

The motion on being put to the Meeting was carried unanimously.

ELECTION TO COUNCIL. In proposing the election of the following to the new Council, Messrs. J. J. Graneek, M.A., Lt.-Col. Ronald Greeves, B.Sc., A.M.I.E.E., J. Heslop Harrison, M.Sc., R. S. Lepper, M.A., LL.M., F.R.Hist.S., J. R. Young, F.R.I.B.A. Captain Turner, J.P., M.C., said it gave him great pleasure to make the proposal. He appreciated the trouble and work which was done by the Society for the citizens of Belfast and hoped the Society would continue to flourish for many years to come.

The proposal was seconded by Professor W. J. Wilson and as there were no further nominations the Chairman declared that the persons whose names were now read be duly elected to the Council for three years.

There being no further business the Chairman declared the meeting closed and announced that the first Meeting of the 128th Session would take place on the 25th November, 1948, at 8 p.m., when the evening would be devoted to film exhibitions.

The Meeting then terminated and subsequently the new Council met when the Officers for the coming Session were re-elected.

THE ACCOUNT OF BELFAST NATURAL HISTORY AND PHILOSOPHICAL SOCIETY

For the Year ended 31st October, 1948.

RECEIPTS.		PAYMENTS.	
To Balance as per last Account ...	£21 2 5	By Maintenance of Premises, etc. ...	£46 5 4
" Donations, Bequests, etc. ...	...	" Rent, Rates and Taxes ...	26 12 2
" Subscriptions ...	66 2 0	" Insurance ...	35 5 3
" Dividends ...	18 6 0	" Salaries and Wages ...	98 10 8
" Rents ...	417 6 0	" Lectures, including Advertising ...	80 13 8
" Rebate of Income Tax ...	12 3 0	" Printing Proceedings ...	124 18 10
" Fees ...	...	" Fuel and Light ...	69 7 9
" Realised by Sales ...	...	" Other Payments, viz. :—	...
" Miscellaneous Receipts, viz. :—	...	Stationery ...	£8 9 2
Sale of Periodicals ...	1 18 6	Postages ...	6 18 11
		Advertising Annual Meeting ...	4 3 4
		Telephone ...	6 15 4
		Commission on Rents ...	15 12 11
		Bank Charges ...	1 17 8
		Audit Fee ...	1 1 0
		Cleaning Materials ...	2 5 6
			47 3 10
<div> <div>4½% York Street Debenture Stock ... £400 0 0</div> <div>3½% War Stock ... 239 19 0</div> </div>		<div> <div>Balance, per Bank Book ... £8 0 5</div> <div>Balance in Accounting Officer's hands ... —</div> <div>Net Balance ... £8 0 5</div> </div>	
£536 17 11		„ Balance in favour of Account on 31st October, 1948 ... 8 0 5 £536 17 11	

We certify that the above is a true Account.
(Signed) A. DEANE, Governor.

4th day of November, 1948.
J. CRAWFORD SHAW, Accounting Officer.

I certify that the foregoing Account is correct.

(Signed) P. C. DUGGAN,
Comptroller and Auditor-General.
17th day of November, 1948.

IN ACCOUNT WITH ARCHAEOLOGICAL SECTION, 1947-48.

To Balance 31st October, 1947	...	...	£4	0	2	By Charge for Rent, Salaries, and Overhead Expenses ...	£12	0	0
" Subscriptions : 1947-48	...	£11	5	0		" Balance due to Archaeological Section at 31st			
" Subsidy : 1947-48	...	5	10	0		October, 1948	...	8	15
					16	15	0		2
								£20	15
								2	

4th November, 1948.

Certified correct.
J. CRAWFORD SHAW.
Hon. Treasurer.

EXCHANGES.

*Publications received during year.

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- *ABO—Publications of the Abo Academy.
 ADDIS ABABA—Bollettini di Idrobiologia, Caccia e Persca della Africa Orientale Italiana.
- *ALBANY—Bulletins of the New York State Museum.
 ANN ARBOR—Publications of the University of Michigan.
- *ATHENS—Publications of the Zoological Institute and Museum, University of Athens.
- *AUCKLAND—Reports of the Auckland Institute and Museum.
- *BASEL—Verhandlungen der Naturforschenden Gessellschaft in Basel.
 BERGEN—Publications of the Bergen Museum.
 BERKELEY, CAL.—Publications of the University of California.
 BERLIN—Publications of the Zoological Museum of Berlin University.
- *BIRMINGHAM—Publications of the Birmingham Natural History and Philosophical Society.
- *BLOEMFONTEIN—Publications of the National Museum of South Africa.
- *BOLOGNA—R. Accademia delle Scienze di Bologna.
- *BOSTON—Publications of the Boston Society of Natural History.
 BOULDER—Publications of the University of Colorado.
- *BRIGHTON—Report of the Brighton and Hove Natural History and Philosophical Society.
- BRISBANE—Memoirs of the Queensland Museum.
- *BRUSSELS—Annals Société Royale Zoologique de Belgique.
 „ „ Bulletin Société Royale de Botanique de Belgique.
- BUENOS AIRES—Anales del Museo Argentino de Ciencias Naturales.
 „ „ Museo Nacional de Historia Natural.
- *BUFFALO—Bulletins of the Buffalo Society of Natural Sciences.
 CALCUTTA—Publications of the Geological Survey of India.
- *CAMBRIDGE, MASS.—Publications of the Museum of Comparative Zoology.
- *CARDIFF—Transactions of the Cardiff Naturalists' Society.
- *CHICAGO—Publications of the Chicago Academy of Sciences.
 „ „ Publications of the Field Museum of Natural History.
- *CINCINNATI—Publications of the Lloyd Library and Museum.
- *COIMBRA—Publications of the Zoological Museum of the University of Coimbra.
- *COLORADO SPRINGS—Publications of the Colorado College.
 COLUMBIA—Proceedings of the Missouri Academy of Science.
 COLUMBUS—Ohio Journal of Science.
- * „ „ Bulletin of the Ohio Biological Society.
- *COVENTRY—Proceedings of the Coventry Natural History and Scientific Society.
 DANZIG—Schriften Naturforschenden Gesellschaft.
- *DUBLIN—Proceedings of the Royal Dublin Society.
 „ „ „ Irish Historical Studies.”
 „ „ Bulletin of Geographical Society of Ireland.
- EASTBOURNE—Publications of Eastbourne Natural History, Photographic and Literary Society.

- *EDINBURGH—Proceedings of the Royal Physical Society.
- * „ „ Proceedings of the Royal Society of Edinburgh.
- * „ „ Transactions and Proceedings of the Botanical Society of Edinburgh.
- * „ „ Proceedings of the Society of Antiquaries of Scotland.
- *EXETER—Proceedings of the Devon Archaeological Exploration Society.
- *GLASGOW—Transactions of the Geological Society of Glasgow.
- *GORLITZ—Publications of the Natural History Society of Gorlitz.
- GOTEBORGS—Handlungar Regia Societas Scientiarum et Literarum Gotoburgensis.
- * „ „ Göteborgs Kungl. Vetenskaps—och Vitterhets—Samhälle.
- *HALIFAX, N.S.—Proceedings of the Nova Scotian Institute of Science.
- HOVE—Annual Report of the Brighton and Hove Natural History and Philosophical Society.
- *INDIANAPOLIS—Proceedings of the Indiana Academy of Science.
- ITHACA—Bulletins of the Cornell University Experiment Station.
- LA PLATA—“Manuferos Fossiles de la Republica Argentina.”
- * „ „ Correspondencia Cientifica de Florentino Ameghino.
- *LAUSANNE—Memoirs and Bulletins de la Société Vaudoise des Sciences Naturelles.
- *LAWRENCE—Bulletins of the University of Kansas.
- LENINGRAD—Publications of Komarov Botanical Institute of the Academy of Sciences of U.S.S.R.
- LIMA—Memorias Sociedad de Ingenieros del Peru.
- LJUBLJANA, YUGOSLAVIA—Transactions of the Natural Science Society.
- *LONDON—Publications of the British Museum (N.H.).
- * „ „ Quarterly Journal of the Royal Microscopical Society.
- * „ „ Publications of the British Association for the Advancement of Science.
- * „ „ Proceedings of the Royal Institution of Great Britain.
- * „ „ Quarterly Journal of the Geological Society.
- * „ „ Publications of the Viking Society for Northern Research.
- * „ „ Reports of the National Trust.
- * „ „ Proceedings of the Essex Field Club.
- LOS ANGELES—Publications of the University of California in Los Angeles.
- LUBLIN—Annales Universitatis Mariae Curie—Sklodowska.
- LUND—Proceedings of the Royal Physiographic Society at Lund.
- *MADISON—Transactions of the Wisconsin Academy of Sciences, Arts and Letters.
- *MADRID—Publications of the International Exchange Service.
- MADRAS—Publications of the Government Museum, Madras.
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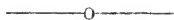
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